HEALTH SERVICES AND DEVELOPMENT AGENCY MEETING
APRIL 25, 2018
APPLICATION SUMMARY

NAME OF PROJECT:	Metro Knoxville HMA, LLC d/b/a Tennova Healthcare North Knoxville Medical Center
PROJECT NUMBER:	CN1801-001
ADDRESS:	7565 Dannaher Drive Powell (Knox County), TN 37849
LEGAL OWNER:	Metro Knoxville HMA, LLC d/b/a Tennova Healthcare 200 East Blount Avenue, Suite 600 Knoxville (Knox County), TN 37920
OPERATING ENTITY:	Not Applicable
CONTACT PERSON:	Clyde Wood (862) 632-5605
DATE FILED:	January 10, 2018
PROJECT COST:	$227,225.00
FINANCING:	Cash Reserves
PURPOSE FOR FILING:	Expansion of Existing Cardiac Catheterization Services to include Interventional Cardiac Catheterization

DESCRIPTION:

Metro Knoxville HMA, LLC d/b/a Tennova Healthcare, North Knoxville Medical Center (NKMC), a 108 bed satellite hospital operating under the 610 bed license of Metro Knoxville HMA, LLC d/b/a Tennova Healthcare. The parent hospital is Physicians Regional Medical Center. NKMC is seeking approval for the expansion of its cardiac catheterization services, currently limited to diagnostic procedures, to include interventional (therapeutic) cardiac catheterization services. Existing support areas will be used for the proposed therapeutic cath services, with no renovation or expansion needed.

SPECIFIC CRITERIA AND STANDARDS REVIEW:

Cardiac Catheterization Services

Note to Agency members: The need determination for cardiac catheterization is based on a weighted system. This system considers three categories of diagnostic catheterizations and three types of therapeutic catheterizations. The three categories are cardiac catheterization, peripheral vascular catheterization, and electrophysiological study. The definition of these studies follows:

Diagnostic Cardiac Catheterization: The performance of cardiac catheterization for the purpose of detecting and identifying defects in the great arteries or veins of the heart, or abnormalities in the heart structure, whether congenital or acquired. Diagnostic cardiac catheterization services include, but are not limited to, left heart catheterizations, right heart catheterizations, left ventricular angiography, coronary procedures, and other cardiac catheterization services of a diagnostic nature. Post-operative evaluation of the effectiveness of prostheses also can be accomplished through a diagnostic catheterization procedure.

Therapeutic Cardiac Catheterization: The performance of cardiac catheterization for the purpose of correcting or improving certain conditions that have been determined to exist in the heart or great arteries or veins of the heart. This includes Percutaneous Coronary Interventions (PCI) or any catheter-based treatment procedures for relieving coronary artery narrowing. Included within this definition are procedures such as rotational atherectomy, directional atherectomy, extraction atherectomy, laser angioplasty, implantation of intracoronary stents, brachytherapy, and other catheter treatments for treating coronary atherosclerosis.

Diagnostic Peripheral Vascular Catheterization: An invasive diagnostic test in which a catheter is inserted into a peripheral vein or artery to inject dye (contrast medium). X-rays are taken of the dye within the arteries, allowing clear visualization of the blood flow inside the artery where peripheral vascular disease can occur. This test may be performed within a cardiac catheterization laboratory.

Therapeutic Peripheral Vascular Catheterization: A procedure that can be used to dilate (widen) narrowed or blocked peripheral arteries or to remove a clot or plaque from arteries. In conjunction with or subsequent to peripheral vascular catheterization, a therapeutic procedure may be

performed by various means that include balloon angioplasty, stenting, and atherectomy or other mechanical intervention to restore blood flow to the effected organ or tissue. These procedures may be performed within a cardiac catheterization laboratory.

a) *Balloon Angioplasty: A thin tube called a catheter with a deflated balloon on its tip is passed into the narrowed artery segment. The balloon is then inflated, compressing the plaque and dilating the narrowed artery so that blood can flow more easily. The balloon is then deflated and the catheter is withdrawn.*
b) *Peripheral Stenting: A cylindrical, wire mesh tube that expands and locks open -may be placed in the narrowed artery with another catheter to keep the diseased artery open.*
c) *Catheter-based Atherectomy: A procedure for opening up an artery using a specialized catheter inserted into a blocked artery to remove a buildup of plaque. The catheter may contain a sharp rotating blade ("burr" device), dissectional device (grinding bit), or laser filament to remove the plaque. It may be used as a complement to angioplasty and stenting.*

Diagnostic Electrophysiological Study: An invasive test performed that allows an electrophysiologist to determine the details of abnormal heartbeats, or arrhythmias. Measurements related to the electrical system within the heart are made at baseline and during stimulation to provide information about the exact location and type of arrhythmia so that specific treatment can be given. During this testing, cardiac mapping through the use of catheter manipulation or 3-dimensional systems may take place. The arrhythmia may start from any area of the heart's electrical conduction.

Therapeutic Electrophysiological Study: In conjunction with the diagnostic electrophysiological study, a therapeutic procedure called catheter ablation may be performed. Catheter ablation is most commonly done through the delivery of radio-frequency energy or cryo-energy to an area of the heart to selectively destroy cardiac tissue.

The weighting system is displayed in the following chart:

Category	*Weight*
Diagnostic Cardiac Catheterization	*1*
Diagnostic Peripheral Vascular Catheterization	*1.5*
Therapeutic Cardiac Catheterization	*2.0*
Therapeutic Peripheral Vascular Catheterization	*3.0*
Diagnostic Electrophysiological Studies	*2.0*
Therapeutic Electrophysiological Studies	*4.0*
Pediatrics	*Double Adult Weight*

Applicants proposing to provide any type of cardiac catheterization services must meet the following minimum standards:

I Compliance with Standards: The Division of Health Planning is working with stakeholders to develop a framework for greater accountability to these Standards and Criteria. Applicants should indicate whether they intend to collaborate with the Division and other stakeholders on this matter.

The applicant intends to collaborate with the Division of Health Planning and other stakeholders.

It appears that this criterion is met.

2. Facility Accreditation: If the applicant is not required by law to be licensed by the Department of Health, the applicant should provide documentation that the facility is fully accredited or will pursue accreditation by the Joint Commission or another appropriate accrediting authority recognized by the Centers for Medicare and Medicaid Services (CMS).

The applicant has provided documentation that it is licensed by the Department of Health and certified by The Joint Commission.

It appears that this criterion is met.

3. Emergency Transfer Plan: Applicants for cardiac catheterization services located in a facility without open heart surgery capability should provide a formalized written protocol for immediate and efficient transfer of patients to a nearby open heart surgical facility (within 60 minutes) that is reviewed/tested on a regular (quarterly) basis.

NKMC has an emergency transfer plan with Physicians Regional Medical Center (PRMC) and Turkey Creek Medical Center (TCMC), both of which are part of Tennova Healthcare and have open heart surgery capability.

It appears that this criterion is met.

4. Quality Control and Monitoring: Applicants should document a plan to monitor the quality of its cardiac catheterization program, including, but not limited to, program outcomes and efficiency. In addition, the applicant should agree to cooperate with quality enhancement efforts sponsored or endorsed by the State of Tennessee, which may be developed per Policy Recommendation 2.

   The applicant has provided a plan to monitor quality and states the quality enhancement efforts by the State of Tennessee will be followed.

   It appears that this criterion is met.

5. Data Requirements: Applicants should agree to provide the Department of Health and/or the Health Services and Development Agency with all reasonably requested information and statistical data related to the operation and provision of services and to report that data in the time and format requested. As a standard of practice, existing data reporting streams will be relied upon and adapted over time to collect all needed information.

   The applicant agrees to provide all relevant requested data.

   It appears that this criterion is met.

6. Clinical and Physical Environment Guidelines: Applicants should agree to document ongoing compliance with the latest clinical guidelines of the American College of Cardiology/Society for Cardiac Angiography and Interventions Clinical Expert Consensus Document on Cardiac Catheterization Laboratory Standards (ACC Guidelines).

   Where providers are not in compliance, they should maintain appropriate documentation stating the reasons for noncompliance and the steps the provider is taking to ensure quality. These guidelines include, but are not limited to, physical facility requirements, staffing, training, quality assurance, patient safety,

screening patients for appropriate settings, and linkages with supporting emergency services.

The applicant has agreed to comply with the latest clinical and physical environmental guidelines of the American College of Cardiology/Society for Cardiac Angiography and Interventions and physical environment guidelines.

It appears that this criterion is met.

7. Staffing Recruitment and Retention: The applicant should generally describe how it intends to maintain an adequate staff to operate the proposed service, including, but not limited to, any plans to partner with an existing provider for training and staff sharing.

   NKMC will work with its parent and sister hospitals (PRMC and TCMC) for existing staff members to receive necessary training to care for therapeutic patients, including moving some clinical staff who are currently performing cardiac caths from PRMC to NKMC to provide staffing and training. NKMC notes minimal additional staff will be needed to implement the proposed project.

   It appears that this criterion is met.

8. Definition of Need for New Services: A need likely exists for new or additional cardiac catheterization services in a proposed service area if the average current utilization for all existing and approved providers is equal to or greater than 70% of capacity (i.e., 70% of 2000 cases) for the proposed service area.

   During 2013-2015, the existing 27 cardiac catheterizations (cath) labs in the 11-county service area with a total capacity for 54,000 cath procedures actually performed 58,658.5 weighted cath procedures. According to the Tennessee Department of Health, the labs are operating at 108.6% of the 2000 case per lab threshold or 154.9% of the 70% of capacity threshold.

   It appears that this criterion is met.

9. Proposed Service Areas with No Existing Service: In proposed service areas where no existing cardiac catheterization service exists, the applicant must show the data and methodology used to estimate

the need and demand for the service. Projected need and demand will be measured for applicants proposing to provide services to residents of those areas as follows:

Need. The projected need for a service will be demonstrated through need-based epidemiological evidence of the incidence and prevalence of conditions for which diagnostic and/or therapeutic catheterization is appropriate within the proposed service area.

Demand. The projected demand for the service shall be determined by the following formula:

A. Multiply the age group-specific historical state utilization rate by the number of residents in each age category for each county included in the proposed service area to produce the projected demand for each age category;
B. Add each age group's projected demand to determine the total projected demand for cardiac catheterization procedures for the entire proposed service area.

There are currently 13 cardiac therapeutic catheterization providers in the proposed 11 county Tennessee service area.

It appears that this criterion is not applicable.

10. Access: In light of Rule 0720-4-.01 (1), which lists the factors concerning need on which an application may be evaluated, the HSDA may decide to give special consideration to an applicant:

a. Who is offering the service in a medically underserved area as designated by the United States Health Resources and Services Administration;

All counties in the proposed service area are designated in whole or in part as medically underserved areas.

It appears that this criterion is met.

b. Who documents that the service area population experiences a prevalence, incidence and/or mortality from heart and cardiovascular diseases or other clinical

conditions applicable to cardiac catheterization services that is substantially higher than the State of Tennessee average;

Eight of the eleven counties in the proposed service area have an average heart disease mortality rate (all ages) higher than the 2016 State rate of 232.1 deaths per 100,000. The heart disease mortality rates in the service area ranges from 191.5 in Scott County to 499.8 in Cocke County. Please refer to page 21 of the original application for heart disease mortality rates.

It appears that this criterion is met.

Who is a "safety net hospital" as defined by the Bureau of TennCare Essential Access Hospital payment program; or

North Knoxville Medical Center is not designated as a safety net hospital.

c. Who provides a written commitment of intention to contract with at least one TennCare MCO and, if providing adult services, to participate in the Medicare program.

The applicant contracts with all MCOs in East Tennessee and participates in the Medicare program.

It appears that this criterion is met.

Applicants proposing to provide therapeutic cardiac catheterization services must meet the following minimum standards:

14. Minimum Volume Standard: Such applicants should demonstrate that the proposed service utilization will be a minimum of 400 diagnostic and/or therapeutic cardiac catheterization cases per year by its third year of operation. At least 75 of these cases per year should include a therapeutic cardiac catheterization procedure. Annual volume shall be measured based upon a two-year average which shall begin at the conclusion of the applicant's first year of operation. Only cases including diagnostic and therapeutic cardiac catheterization procedures as defined by these Standards and Criteria shall count towards meeting this minimum volume standard.

NKMC projects 557 actual (non-weighted) total adult cardiac

catheterization lab cases in Year 3 of which 138 cases will be therapeutic caths.

It appears that this criterion is met.

15. Open Heart Surgery Availability: Acute care facilities proposing to offer adult therapeutic cardiac catheterization services shall not be required to maintain an on-site open heart surgery program. Applicants without on-site open heart surgery should follow the most recent American College of Cardiology/American Heart Association/Society for Cardiac Angiography and Interventions Practice Guideline Update for Percutaneous Coronary Intervention (ACC/AHA/SCAI Guidelines). As of the adoption of these Standards and Criteria, the latest version of this document (2007) may be found online at:
http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.107.185159

Therapeutic procedures should not be performed in freestanding cardiac catheterization laboratories, whether fixed or mobile. Mobile units may, however, perform therapeutic procedures provided the mobile unit is located on a hospital campus and the hospital has on-site open heart surgery. In addition, hospitals approved to perform therapeutic cardiac catheterizations without on-site open heart surgery backup may temporarily perform these procedures in a mobile laboratory on the hospital's campus during construction impacting the fixed laboratories.

NKMC has transfer agreements with PRMC and TCMC both of which have open heart surgery capability. NKMC will maintain compliance with the most recent American College of Cardiology/American Heart Association/Society for Cardiac Angiography and Interventions Practice Guideline Update for Percutaneous Coronary Intervention (ACC/AHA/SCAI Guidelines).

It appears that this criterion is met.

16. Minimum Physician Requirements to Initiate a New Service: The initiation of a new therapeutic cardiac catheterization program should require at least two cardiologists with at least one cardiologist having performed an average of 75 therapeutic procedures over the most recent five year period. All participating cardiologists in the

proposed program should be board certified or board eligible in cardiology and any relevant cardiac subspecialties.

The six cardiologists who will perform cardiac catheterizations have averaged over 75 therapeutic procedures over the most recent 5 year period. A table of the NKMC cardiologist' volume is provided on page 6 of supplemental #1.

It appears that this criterion is met.

17. Staff and Service Availability: Ideally, therapeutic services should be available on an emergency basis 24 hours per day, 7 days per week through a staff call schedule (24/7 emergency coverage). In addition, all laboratory staff should be available within 30 minutes of the activation of the laboratory. If the applicant will not be able to immediately provide 24/7 emergency coverage, the applicant should present a plan for reaching 24/7 emergency coverage within three years of initiating the service or present a signed transfer agreement with another facility capable of treating transferred patients in a cardiac catheterization laboratory on a 24/7 basis within 90 minutes of the patient's arrival at the originating emergency department.

NKMC intends to meet all the above staff and service availability requirements.

It appears that this criterion is met.

18. Expansion of Services to Include Therapeutic Cardiac Catheterization: An applicant proposing the establishment of therapeutic cardiac catheterization services, who is already an existing provider of diagnostic catheterization services, should demonstrate that its diagnostic cardiac catheterization unit has been utilized for an average minimum of 300 cases per year for the two most recent years as reflected in the data supplied to and/or verified by the Department of Health.

NKMC reports an average of 116 actual (non-weighted) diagnostic cardiac catheterization cases per year for the two most recent years.

It appears that this criterion has not been met.

Staff Summary

The following information is a summary of the original application and all supplemental responses. Any staff comments or notes, if applicable, will be in bold italics.

Application Synopsis

The applicant, Tennova Healthcare North Knoxville Medical Center (NKMC) is a 108 bed satellite location operating under the combined 610 bed license of Tennova Healthcare. Tennova Healthcare (formerly Mercy Health Partners) operates Physician's Regional Medical Center (PRMC-Physician's Regional"), North Knoxville Medical Center and Turkey Creek Medical Center (Turkey Creek") in Knox County under one hospital license and Medicare provider number. As a whole, Tennova Healthcare staffs 447 of those beds over the three facilities. NKMC seeks approval to offer therapeutic cardiac catheterization, in addition to the current approved cardiac diagnostic service, in its existing cardiac catheterization lab. NKMC is 7.8 miles from Physician's Regional Medical Center and 19.7 miles from Turkey Creek Medical Center. If approved, no construction or renovation will be needed.

Facility Information

- NKMC is a 198,700 SF 6 story hospital located on a 36.6 acre satellite hospital campus. The campus also includes two 3 story medical office buildings (75,500 SF and 75,550 SF) and one 1 story cancer center (48,150 SF).
- The cath lab is located in a 2nd floor suite and does not require construction, renovation, or modification to existing facilities.
- The cardiac catheterization laboratory includes one cath lab, one control room, area for cath lab equipment, two holding/recovery rooms, work area, supply room, and one room that includes two picture archiving and communications systems (PACS) viewing stations.
- A floor plan drawing is included on page A–6B-2 in the application attachments.

According to the 2016 Joint Annual Report, North Knoxville Medical Center (North Knoxville) is licensed for 108 beds and staffed for 83 beds. Of the 108 licensed beds, ninety-six (96) beds are medical beds, while twelve (12) are ICU/CCU beds. The 2016 licensed bed occupancy was 52%, while the staffed bed occupancy was 67.6%.

Licensed Beds- The maximum number of beds authorized by the appropriate state licensing (certifying) agency or regulated by a federal agency. This figure is broken down into adult and pediatric beds and licensed isolettes (neonatal intensive or intermediate care isolettes).

Staffed Beds-The total number of adult and pediatric beds set up, staffed and in use at the end of the reporting period. This number should be less than or equal to the number of licensed beds.

Ownership

The applicant is a satellite hospital operating under the combined license of Tennova Healthcare, wholly owned and operated by Metro Knoxville HMA, LLC d/b/a Tennova Healthcare. The ultimate owner of Tennova Healthcare is Community Health Systems, Inc. (CHS). According to the CHS website, its affiliates own, operate or lease 126 hospitals in 20 states with approximately 21,000 licensed beds. The components of Tennova Healthcare in Knox County include:

- Physicians Regional Medical Center (401 licensed beds) on the main campus (parent hospital);
- North Knoxville Medical Center (108 licensed beds) on the North Campus (satellite); and
- Turkey Creek Medical Center (101 licensed beds) on the West Campus (satellite).

Tennova Healthcare encompasses the following Tennessee facilities: one free standing emergency department, five rehabilitation centers, sixteen hospitals, one cancer center, two pain centers, two wound centers, and one surgery center.

NEED

Project Need

The applicant provided the following justification for the project:

- The applicant indicates the addition of therapeutic catheterization services will improve access to service area residents that need life-saving interventional treatment.
- If approved, diagnostic cath patients that require interventional cath services will receive both services during the same session rather than enduring a second session at another facility at a later date.
- Annually, NKMC transports approximately 400 emergency department and inpatients from its hospital that would benefit from the proposed interventional cardiac cath service.
- The ability to provide interventional cardiac cath services in a timelier manner and without the additional cost of transportation offer significant benefits to cardiac patients.
- Patients from the NKMC 11 county service area must navigate the large and congested PRMC campus in downtown Knoxville (Knox County), which is more difficult to reach, compared to the NKMC campus.

- The proposed project requires a limited investment in additional equipment and no facility renovation or expansion that would require new construction.

Service Area Demographics

The applicant's declared service area consists of the following 11 counties in East Tennessee: Anderson, Campbell, Claiborne, Cocke, Grainger, Hamblen, Jefferson, Knox, Scott, Sevier, and Union. A map of the proposed service area is located on page 32 of the application.

- The total population the service area is estimated at 964,942 residents in calendar year CY 2018 increasing by approximately 4.0% to 1,003,466 residents in CY 2022.
- The total population of the state of Tennessee is expected to grow 4.4% from CY2018 to CY2022.
- The total 65+ age population is estimated at approximately 175,558 residents in CY 2018 increasing approximately 14.6% to 202,322 residents in 2022 compared to a statewide change of 15.8% during this time period.
- The age 65 and older 2018 population accounts for approximately 18.3% of the total service area population compared to 16.9% statewide.
- The applicant estimates that approximately 20.7% of the service area's residents are enrolled in TennCare compared to 21.2% statewide.

Historical Utilization

The weighted utilization table below reflects the following:

- The proposed service area for the period 2013-2015 operated at 154.9% of the standard for new or additional cardiac catheterization services (i.e., 70% of 2000 weighted cases), and 108.4% of the total capacity standard (2,000 weighted cases).
- Providers in the service area ranged from 7.1% at Tennova Healthcare-North Knoxville Medical Center to 187.6% at Memorial Methodist Medical Center of Oak Ridge in meeting the total cath lab capacity of 2,000 weighted caths.

11 County Service Area
Weighted Utilization of Cardiac Catheterization Service Providers
2013-2015

Service Area Hospital	Cardiac Cath Equivalents			Cath Labs	% of total capacity standard (2,000)
	Diagnostic	Therapeutic	Total		
Methodist Medical Center of Oak Ridge	4,316	3,187	7,503	2	187.6%
Morristown-Hamblen Healthcare System	1,815	1,462	3,277	2	81.9%
Fort Sanders Medical Ctr.	3,368	2,866	6,234	4	78%
Tennova Healthcare PRMC	3,716	5,186	8,902	3	151.5%
University of Tennessee Memorial Hospital	7,098	7,342	14,440	5	144.4%
Parkwest Medical Center	8,227	5,810	14,036	5	140.4%
Tennova Healthcare-Turkey Creek	1,567	2072	3639	4	46.6%
Tennova Healthcare-North Knoxville Medical Center	39	29	68	1	7.1%
LeConte Medical Center	437.5	11	448.5	1	22.4%
Total	**30,583**	**27,965**	**58,548**	**27**	**108.4%**
Capacity per Lab				**2,000**	
Total Capacity in Service Area				**54,000**	
% of Existing Services to Capacity				**108.4**	
70% of 2,000 Weighted Cases Standard				**154.9**	

Source: CN1801-001 Supplemental #2, Page 2, Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Health Statistics, Hospital Discharge Data System 2013-2015

Note to Agency members: The Hospital Discharge Data System reported a minimal number of procedures that are not exclusive to cath labs at four service area hospitals that do not have a cardiac catheterization service. Those providers were excluded from the above table.

Applicant's Projected Utilization
The following table displays the projected utilization of the proposed project.

The historical and projected utilization of NKMC's diagnostic and therapeutic cardiac catheterization services are illustrated in the tables below.

NKMC's Historical and Projected Utilization*

	Historical			Projected	
Service	**2015**	**2016**	**2017**	**Year 1 (2019)**	**Year 2 (2020)**
Diagnostic Cardiac Catheterization	101	120	112	305	381
Therapeutic Cardiac Catheterization	N/A	N/A	N/A	101	126
Total Cardiac Cases	**101**	**120**	**112**	**406**	**507**

Source: CN1801-001
**Actual (Not Weighted)*

- If approved, therapeutic utilization is projected to increase 24.8% from 406 cases in 2019 to 507 cases in 2020.

ECONOMIC FEASIBILITY

Project Cost

The total project cost is $227,225.

Major costs reflected in the revised Project Costs Chart are:

- $117,225 for Moveable Equipment (to supplement existing clinical equipment).
- $65,000 for Legal, Administrative, and Consultant Fees
- $30,000 for Contingency
- The remaining cost of the proposed project is $15,000 for the CON filing fee.

Financing

- A letter of attestation dated January 4, 2018 from CHS/Community Health Systems, Inc.'s Vice-President states the parent company has the financial resources of $227,225 to fully fund the project.
- Community Health Systems audited consolidated financial statements for the period ending December 31, 2016 revealed $4,666,000,000 in total current assets, total current liabilities of $2,887,000,000 and a current ratio of 1.62 to 1.0.

Note to Agency Members: Current ratio is a measure of liquidity and is the ratio of current assets to current liabilities which measures the ability of an entity to cover its current liabilities with its existing current assets. A ratio of 1:1 would be required to have the minimum amount of assets needed to cover current liabilities.

Net Operating Margin Ratio

- The applicant projects a net operating margin ratio for the total facility of 40.6% in Year 1 and 45.9% in Year 2.

Note to Agency Members: The net operating margin demonstrates how much revenue is left over after all the variable or operating costs have been paid.

Capitalization Ratio

- Open Arm's capitalization ratio is 89.5%.

Note to Agency Members: The capitalization ratio measures the proportion of debt financing in a business's permanent financing mix.

Historical Data Chart

- According to the Historical Data Chart, NKMC realized a favorable Net Operating Income of $14,549,000 in FY2014, $13,388,000 in 2015, and $17,614,000 in 2016.
- Free Cash Flow (Net Balance + Depreciation) totaled $16,049,000 in 2014, $12,426,000 in 2015, and $14,127,000 in 2016.

Projected Data Chart

The Projected Data Chart for the proposed therapeutic service reflects $18,176,000 in total gross revenue on 406 cases during the first year of operation and $23,371,500 on 507 cases in Year 2. The Projected Data Chart reflects the following:

- Net operating income less capital expenditures for the applicant will equal $779,300 in Year One increasing to $1,338,000 in Year 2.
- Net operating revenue after bad debt, charity care, and contractual adjustments is expected to be approximately 17% of total gross revenue in Year 1 and in Year 2, totaling $3,090,000 and $3,973,100, respectively.

Charges

In Year 1, the proposed average gross charge per therapeutic cardiac procedure is $44,800;, however the net charge per procedure is $7,600.

Medicare/TennCare Payor Mix

- The expected payor mix in Year 1 includes 25% for Medicare and 10% for TennCare.
- As documented by the applicant NKMC has negotiated contracts with all TennCare MCOs in the service area: AmeriGroup, United Healthcare (AmeriChoice), and TennCare Select.

PROVIDE HEALTHCARE THAT MEETS APPROPRIATE QUALITY STANDARDS

Licensure

- Tennova Healthcare has an active license issued by the Tennessee Department of Health that expires on January 1, 2019.
- A copy of the most recent survey conducted on August 16, 2017 by the Centers for Medicare and Medicaid Services is included in Attachment Section B, Need-A.2.
- The applicant was notified by the Centers for Medicare and Medicaid Services on November 15, 2017 that the facility's plan of correction was approved and that the facility was in compliance with all Medicare participation requirements.

Certification

- The applicant is Medicare and Medicaid certified.

Accreditation

- Tennova Healthcare is accredited by The Joint Commission effective July 1, 2017 valid up to 36 months.

Other Quality Standards

- In the first supplemental response the applicant commits to obtaining and/or maintaining the following:
  - Staffing levels
  - Licenses in good standing
  - Medicare TennCare/Medicaid certification
  - Maintaining the medical staff and ancillary support staff

CONTRIBUTION TO THE ORDERLY DEVELOPMENT OF HEALTHCARE

Agreements

- NKMC has contractual and working relationships with over 30 providers that include general acute care hospitals, tertiary care medical centers, nursing homes, and home care organizations. A complete list is located on page 53 of the application.

- NKMC has transfer agreements with sister hospitals, Physicians Regional Medical Center and Turkey Creek Medical Center for those patients needing cardiac care. The following chart reflects the 2017 number of patient transfers for therapeutic catheterization and open heart surgery, as well as distance and travel time.

Hospital	Distance From NKMC	Emergency Travel Time from NKMC to Hospital by ground	2017 # Transfers for open heart surgery	2017 # Transfers for therapeutic catheterization
Physician Regional Medical Center	7.8 miles	17 minutes	44	323
Turkey Creek	19.7 miles	25 minutes	0	25

Source: CN1801-001 Supplemental #1

Impact on Existing Providers

- The applicant indicates the proposed project will not negatively impact other providers in the service area. The applicant expects that the patient population will mainly include those patients that are currently being transferred to other Tennova facilities in Knox County.

Staffing

The applicant's Year One proposed direct patient care staffing includes the following:

Position Type	Existing # FTEs	Projected # FTEs Year 1
Registered Nurses	2.0	2.0
Techs	2.0	4.0
Total	**4.0**	**6.0**

Source: CN1801-001Page 52

The applicant has submitted the required information on corporate documentation and title and deeds. Staff will have a copy of these documents available for member reference at the meeting. Copies are also available for review at the Health Services and Development Agency's office.

Should the Agency vote to approve this project, the CON would expire in three years.

CERTIFICATE OF NEED INFORMATION FOR THE APPLICANT

There are no other Letters of Intent, denied or pending applications, or outstanding Certificates of Need for this applicant.

Note: Community Health Systems, Inc. has a financial interest in this project and the following:

Pending Applications

Tennova Healthcare-Cleveland, CN1802-015, has a pending application that is scheduled to be heard at the June 27, 2018 Agency meeting for the establishment of a satellite emergency department facility with 8 treatment rooms at 680 Stuart Road NE, Cleveland (Bradley County), TN. The estimated project cost is **$12,081,195.**

Outstanding Certificates of Need

Metro Knoxville HMA, LLC d/b/a Tennova Healthcare, CN1408-033A, has an outstanding Certificate of Need that will expire on January 1, 2019. The project was approved at the November 19, 2014 Agency meeting for the partial replacement and relocation of 272 of 401 beds from Physicians Regional Medical Center from 900 E. Oak Hill Avenue, Knoxville (Knox County) to a site at the intersection of Middlebrook Pike and Old Weisgarber Road across from Dowell Springs Boulevard, Knoxville (Knox County), a distance of approximately nine (9) miles from the current facility. The estimated project cost is **$303,545,204.00.** *Project Status: Per a 4/12/18 progress report, the project will not be implemented.*

Metro Knoxville HMA, LLC d/b/a Tennova Healthcare, CN1406-034A, has an outstanding Certificate of Need that will expire on January 1, 2019. The project was approved at the November 19, 2014 Agency meeting for the replacement and relocation of the 25 bed nursing home which is located in Physicians Regional Medical Center. The nursing home proposed to relocate from the hospital from 900 E. Oak Hill Avenue, Knoxville (Knox County) to a site at the intersection of Middlebrook Pike and Old Weisgarber Road across from Dowell Springs Boulevard, Knoxville (Knox County), a distance of approximately nine (9) miles from the current facility. The estimated project cost is **$6,454,796.00.** *Project Status: Per a 4/12/18 progress report, the project will not be implemented.*

CERTIFICATE OF NEED INFORMATION FOR OTHER SERVICE AREA FACILITIES:

There are no other Letters of Intent, denied or pending applications, or outstanding Certificate of Needs for other health care organizations in the service area proposing this type of service.

PLEASE REFER TO THE REPORT BY THE DEPARTMENT OF HEALTH, DIVISION OF HEALTH STATISTICS, FOR A DETAILED ANALYSIS OF THE STATUTORY CRITERIA OF NEED, ECONOMIC FEASIBILITY, HEALTH CARE THAT MEETS APPROPRIATE QUALITY STANDARDS, AND CONTRIBUTION TO THE ORDERLY DEVELOPMENT OF HEALTH CARE IN THE AREA FOR THIS PROJECT. THAT REPORT IS ATTACHED TO THIS SUMMARY IMMEDIATELY FOLLOWING THE COLOR DIVIDER PAGE.

PME
(4/12/2018)

LETTER OF INTENT

State of Tennessee
Health Services and Development Agency
Andrew Jackson Building, 9th Floor
502 Deaderick Street
Nashville, TN 37243
www.tn.gov/hsda Phone: 615-741-2364 Fax: 615-741-9884

LETTER OF INTENT

The Publication of Intent is to be published in the **Knoxville News Sentinel** (Name of Newspaper) which is a newspaper of general circulation in **Knox County** (County), Tennessee, on or before **January 9** (Month / day), **2018** (Year), for one day.

~~This is to provide official notice to the Health Services and Development Agency and all interested parties, in~~ accordance with T.C.A. § 68-11-1601 *et seq.*, and the Rules of the Health Services and Development Agency, that: **Metro Knoxville HMA, LLC, d/b/a Tennova Healthcare, North Knoxville Medical Center** (Name of Applicant) **Hospital** (Facility Type - Existing) owned by: **Metro Knoxville HMA Holdings, LLC d/b/a Tennova Healthcare** with an ownership type of **Limited Liability Corporation** and to be managed by: **Metro Knoxville HMA Holdings, LLC, d/b/a Tennova Healthcare** intends to file an application for a Certificate of Need for: **the expansion of the existing diagnostic cardiac catheterization services at Tennova Healthcare – North Knoxville Medical Center campus, 7565 Dannaher Drive, Powell, TN 37849 to include interventional (therapeutic) cardiac catheterization services. The project involves no construction or renovation as the interventional cardiac cath services will be provided in the existing cardiac catheterization/vascular lab. The licensed bed complement will not be affected by this proposal. The estimated total project cost is $227,225.**

The anticipated date of filing the application is: **January 10, 2018**

The contact person for this project is **Clyde Wood** (Contact Name), **CEO** (Title)

who may be reached at: **Tennova Healthcare-North Knoxville** (Company Name), **7565 Dannaher Drive** (Address)

Powell (City)	**Tennessee** (State)	**37849** (Zip Code)	**865.859.1205** (Area Code / Phone Number)
Clyde Wood (Signature)		01/02/2018 (Date)	**clyde.wood@tennova.com** (E-mail Address)

The Letter of Intent must be filed in triplicate and received between the first and the tenth day of the month. If the last day for filing is a Saturday, Sunday or State Holiday, filing must occur on the preceding business day. File this form at the following address:

Health Services and Development Agency
Andrew Jackson Building, 9th Floor
502 Deaderick Street
Nashville, Tennessee 37243

The published Letter of Intent must contain the following statement pursuant to T.C.A. § 68-11-1607(c)(1). (A) Any health care institution wishing to oppose a Certificate of Need application must file a written notice with the Health Services and Development Agency no later than fifteen (15) days before the regularly scheduled Health Services and Development Agency meeting at which the application is originally scheduled; and (B) Any other person wishing to oppose the application must file written objection with the Health Services and Development Agency at or prior to the consideration of the application by the Agency.

Metro Knoxville HMA, LLC, dba Tennova Healthcare, North Knoxville Medical Center

(Copy)

CN1801-001

Tennova™ Healthcare

North Knoxville Medical Center

Certificate of Need Application to Expand Existing Diagnostic Cardiac Catheterization Services to Include Therapeutic Cardiac Services

Name of Facility: Metro Knoxville HMA, LLC d/b/a
Tennova Healthcare – North Knoxville Medical Center
7565 Dannaher Drive
Powell, Tennessee 37849

Contact Person: Clyde Wood, CEO
Tennova Healthcare – North Knoxville Medical Center
7565 Dannaher Drive
Powell, Tennessee 37849

January 10, 2018

State of Tennessee 25
Health Services and Development Agency
Andrew Jackson Building, 9th Floor, 502 Deaderick Street, Nashville, TN 37243
www.tn.gov/hsda Phone: 615-741-2364 Fax: 615-741-9884

CERTIFICATE OF NEED APPLICATION

SECTION A: APPLICANT PROFILE

1. Name of Facility, Agency, or Institution

Metro Knoxville HMA, LLC d/b/a Tennova Healthcare North Knoxville Medical Center
Name

7565 Dannaher Drive — Knox
Street or Route — County

Powell — TN — 37849
City — State — Zip Code

Website address: www.tennova.com

*Note: The facility's name and address **must be** the name and address of the project and **must be** consistent with the Publication of Intent.*

2. Contact Person Available for Responses to Questions

Clyde Wood — CEO
Name — Title

Metro Knoxville HMA, LLC d/b/a
Tennova Healthcare North Knoxville Medical Center — Clyde.Wood@tennova.com
Company Name — Email address

7565 Dannaher Drive — Powell — TN — 37849
Street or Route — City — State — Zip Code

CEO — 862-632-5605 — 862-632-5630
Association with Owner — Phone Number — Fax Number

NOTE: ***Section A*** is intended to give the applicant an opportunity to describe the project. ***Section B*** addresses how the project relates to the criteria for a Certificate of Need by addressing: Need, Economic Feasibility, Contribution to the Orderly Development of Health Care, and Quality Measures.

Please answer all questions on ***8½" X 11" white paper, clearly typed and spaced, single or double-sided, in order and sequentially numbered. In answering, please type the question and the response.*** All questions must be answered. If an item does not apply, please indicate *"N/A" (not applicable).* ***Attach appropriate documentation as an Appendix at the end of the application and reference the applicable Item Number on the attachment, i.e., Attachment A.1, A.2, etc. The last page of the application should be a completed signed and notarized affidavit.***

3. SECTION A: EXECUTIVE SUMMARY

A. Overview

Please provide an overview not to exceed three pages in total explaining each numbered point.

1) Description – Address the establishment of a health care institution, initiation of health services, bed complement changes, and/or how this project relates to any other outstanding but unimplemented certificates of need held by the applicant;

RESPONSE: Tennova Healthcare – North Knoxville Medical Center is a licensed 108-bed general acute care hospital located in Powell, Knox County, Tennessee. North Knoxville Medical Center is a satellite location of Metro Knoxville HMA, LLC d/b/a Tennova Healthcare ("Tennova"). In Metropolitan ("metro") Knoxville, Tennova Healthcare provides inpatient care at three hospitals: Physicians Regional Medical Center ("Physicians Regional" or "PRMC"), North Knoxville Medical Center ("North Knoxville" or "NKMC") and Turkey Creek Medical Center ("Turkey Creek"). These three campuses operate under a single hospital license and Medicare provider number, and have a single, shared medical staff.

North Knoxville currently offers diagnostic cardiac catheterization ("cath") services in a single lab. The services are provided by physicians from the East Tennessee Heart Consultants ("ETHC") physician group, which is an employed 22-physician group comprised of interventional and diagnostic cardiologists with offices on all three metro Knoxville Tennova campuses, including NKMC. The inability of NKMC to provide therapeutic cath services means patients presenting to NKMC in need of this service must now be transferred to another facility, ultimately delaying needed treatment to restore blood flow to the patient's heart. Because "every second counts" and "time is muscle" for cardiac patients, these unnecessary delays in care result in less than optimal quality of care for patients who currently rely on and seek care at North Knoxville Medical Center.

NKMC transfers approximately 400 patients annually from its Emergency Department ("ED") and inpatient units who would benefit from the proposed modernization and upgrade of equipment in the existing cardiac cath lab to include therapeutic services. These patients, who are currently choosing to receive health care services at North Knoxville, must be transported to another facility because NKMC is not licensed to offer therapeutic cath services. Thus, not only would the provision of services at NKMC mean shorter time from onset of symptoms to restoration of blood flow for cardiac patients (which is a critical quality of care issue), but it would also mean that patients choosing to receive care at NKMC would be able to do so. In short, the hospital's cardiology patients in need of an interventional procedure would be better served by remaining at NKMC rather than undergoing a transport, which delays the start of therapeutic treatment and involves risks to the patient as well as unnecessary costs.

NKMC defines its therapeutic cardiac cath service area as Knox County (its home county) and the surrounding east Tennessee counties of: Anderson, Campbell, Claiborne, Cocke, Grainger, Hamblen, Jefferson, Scott, Sevier, and Union. This 11-county service area comprises approximately 96% of NKMC's inpatient admissions. In general, the outlying rural counties served by NKMC have higher heart disease death rates, lower per capita income, less education, and higher rates of uninsured than residents in Knox County or the state of Tennessee as a whole. Thus, the proposed provision of therapeutic cath services at NKMC will enhance access to care for a population in need.

North Knoxville's proposed therapeutic cath service will enhance access to care for all service area patients, including those who reside in outlying service area counties and must now travel into the congested downtown Knoxville area for therapeutic cath services. Moreover, once on the NKMC hospital campus, access and wayfinding to the cardiac cath services is much easier and more manageable for patients, including the elderly, than on the much larger and more congested campus of PRMC.

The provision of therapeutic cardiac cath services without on-site surgical backup is a safe and accepted treatment for patients in need when performed by experienced physicians. Low-risk patients with the need for a therapeutic cath during the same session in which the diagnostic cardiac cath is performed are optimally served by having the interventional procedure during the same session, rather than being forced to undergo a second cath procedure at a different location, and oftentimes at a later date (when not an emergent situation).

NKMC has on its staff and campus highly-qualified and trained interventional cardiologists who are capable of performing therapeutic procedures, and who already serve a significant number of therapeutic cath patients from the defined 11-county service area at Tennova's PRMC campus. NKMC has available capacity in its existing cardiac cath lab (currently utilized at less than 10%) while PRMC's cath services are highly utilized (151.5% for most recent 3-year period). Thus, the provision of therapeutic cath services at NKMC will significantly reduce the need for patients to be transported from NKMC to PRMC for therapeutic cath services, enhancing quality of care for patients and improving operational efficiencies for both NKMC and PRMC cardiac cath services. Notably, NKMC's project can be implemented with minimal costs and no construction or renovation. Moreover, there will be no bed complement changes resulting from the proposed project.

NKMC projects to reach the minimum threshold standard for a therapeutic program based solely on redirection of a small portion of existing patients of ETHC interventional cardiologists who are currently on staff and provide diagnostic cardiac caths at NKMC. Immediately upon approval of this project to upgrade and modernize NKMC's cardiac cath services, ETHC cardiologists will expand their presence on the NKMC hospital campus in order to provide service area residents with accessible interventional treatment.

2) Ownership structure;

RESPONSE: North Knoxville Medical Center, the site of the proposed Project, is a satellite location of Metro Knoxville HMA, LLC d/b/a Tennova Healthcare. As stated above, Tennova Healthcare provides acute care at three locations in the metro Knoxville area: Physicians Regional, North Knoxville Medical Center, and Turkey Creek. These three hospitals operate under a single state hospital license and one Medicare provider number, and share a single medical staff, including physicians in the East Tennessee Heart Consultants group.

3) Service area;

RESPONSE: The service area for the proposed addition of therapeutic cardiac catheterization services is an 11-county area which includes both the urban area of Knox County along with a number of rural communities. This 11-county area accounts for approximately 96% of the inpatients cared for at North Knoxville Medical Center. The service area in this application is consistent with NKMC's service area in prior applications, including for example, the hospital's diagnostic cardiac cath application (CN1211-056).

4) **Existing similar service providers;** 28

RESPONSE: The current utilization of existing cardiac catheterization providers in the 11-county service area is 123.2%, nearly double the 70% capacity threshold for a new service. According to the 2015 Joint Annual Reports ("JAR"), nine (9) hospitals in the service area currently provide cardiac catheterization services, including North Knoxville Medical Center. Of these 9 hospitals, North Knoxville and LeConte Medical Center are the only two providers with diagnostic-only cath services.

5) **Project cost;**

RESPONSE: The proposed addition of therapeutic cardiac cath services at North Knoxville requires a limited capital investment of $227,225. No renovation of existing facilities or new construction is needed to implement the therapeutic cath service. Rather, the modernization and upgrade of the existing cath lab requires only the purchase of an integrated precision guided therapy system with Phased Array IVUS and FFR to supplement the existing cath lab's equipment. Existing support areas (*e.g.*, pre- and post-procedure areas and patient registration) will be utilized for the therapeutic cath services, with no required renovation or expansion.

6) **Funding;**

RESPONSE: The project will be funded through cash reserves. (*See* the project funding letters provided in Attachment B-EconFeas-B.)

7) **Financial Feasibility including when the proposal will realize a positive financial margin; and**

RESPONSE: The proposed project will realize a positive financial margin in Project Year 1. As shown in the proforma, minimal project costs are required to implement the modernization and expansion of existing cardiac cath services at NKMC.

8) **Staffing.**

RESPONSE: The expansion of cardiac cath services to include therapeutic cath at NKMC will require limited additional staff in order to initiate the service. Both new and existing staff will be required to be on-call in order to enable the service to be available 24 hours per day, 7 days a week.

Some of the existing staff members will require training related to the care required for therapeutic patients. NKMC will work with its sister hospitals (PRMC and Turkey Creek) for existing staff members to receive the necessary training to care for therapeutic patients, including moving some clinical staff who are currently performing interventional cardiac caths from PRMC to NKMC to supplement staffing and provide training for current NKMC staff. When new staffing is needed, NKMC will utilize its proven methods of staff recruitment and retention to ensure adequate staffing for the cardiac cath service is in place.

Specific to physicians who will provide the service, NKMC already has on its staff interventional cardiologists with a part-time presence in the ETHC office on NKMC's hospital campus, who will expand their practices and services provided on NKMC's campus immediately upon approval of the proposed expansion project.

B. Rationale for Approval

A certificate of need can only be granted when a project is necessary to provide needed health care in the area to be served, can be economically accomplished and maintained, will provide health care that meets appropriate quality standards, and will contribute to the orderly development of adequate and effective health care in the service area. This section should provide rationale for each criterion using the data and information points provided in Section B. of this application. Please summarize in one page or less each of the criteria:

1) Need;

RESPONSE: The diagnostic-only cardiac cath service at NKMC has experienced limited volumes as service area emergent patients requiring interventional care and scheduled diagnostic patients with a likely need for a therapeutic cath receive their diagnostic and therapeutic cardiac caths at PRMC or Turkey Creek, the other two Knox County Tennova hospitals with the capability to provide interventional cardiac caths.

Currently, emergency medical services ("EMS") transport units oftentimes bypass NKMC with cardiac emergency patients likely in need of interventional services. That will no longer be the case once NKMC has the ability to perform therapeutic cath services in its existing diagnostic cardiac cath program, thus benefiting service area residents with quicker access to life-saving interventional treatment. For non-emergent patients, the ability of NKMC to provide therapeutic cath services in its existing diagnostic cardiac cath lab means that service area patients requiring a diagnostic cath will be more likely to utilize NKMC's program since, if needed, the patient will be able to receive interventional services during the same session rather than enduring a second session at another facility at a later date. Thus, both emergent and non-emergent patients will benefit from the proposed modernization and upgrade of NKMC's existing diagnostic cath services.

NKMC transfers approximately 400 ED and inpatients annually from its hospital who would benefit from the proposed interventional cardiac cath service. (This number excludes patients who are transferred from NKMC inpatient units for cardiovascular surgery; those patients would continue to be transferred to an open heart surgery ("OHS") provider.) The high number of patients who must be transported to another facility for therapeutic cath services reflects the reliance of service area patients on NKMC for inpatient, outpatient, and emergency services. Moreover, in general, the outlying rural counties served by NKMC have higher heart disease death rates, higher percentages of elderly (ages 65+), lower per capita income, less education, and higher rates of uninsured than residents in Knox County or the state of Tennessee as a whole. Thus, the proposed provision of therapeutic cath services at NKMC will enhance access to care for a population in need. As the provision of therapeutic cardiac caths without on-site OHS backup has become an accepted standard within the medical community, the ability to provide this care in a timelier manner and without the additional cost of transportation offers significant benefit to cardiac patients.

The inability of NKMC to offer therapeutic cath services in its existing diagnostic cardiac cath lab not only negatively impacts patient care (by delaying needed treatment) but also limits the ability of the cardiac cath service to operate at an optimal level, resulting in inefficiencies associated with a relatively low volume diagnostic-only provider. At the same time, PRMC's cath service is highly utilized. Patients from the 11-county service area must now navigate the large and congested PRMC campus in downtown Knoxville, which is often more difficult to reach compared to the easily-accessible NKMC campus.

Finally, the proposed Project requires a limited investment in additional equipment and no facility renovation or expansion that would require new construction.

2) Economic Feasibility;

RESPONSE: The proposed project requires minimal capital investment, minimal additional staffing, and no renovation or expansion of the hospital's existing cardiac cath lab and support areas. Moreover, the project involves the redirection of existing Tennova patients from an over-utilized cath lab (PRMC) to an under-utilized cath lab, both of which are operated by highly skilled and specially-trained Board Certified Interventional Cardiologists.

NKMC's proposed charges are consistent with its sister facilities (PRMC and Turkey Creek) and are commensurate with charges at existing providers in the service area. The project will be funded from cash on hand.

NKMC's conservatively projects that it will meet the minimum volume threshold levels (*i.e.*, 400 diagnostic and/or therapeutic cath cases per year by its third year of operation, with at least 75 of these cases per year including a therapeutic cath) by the end of Year 1 of its project, as existing PRMC cardiac cath outpatients from the 11-county service area are shifted to NKMC. The projected volume in Project Year 1 is consistent with NKMC's current volume of cardiac inpatients and ED patients transferred because they likely require an interventional cath procedure.

The reasonable volume projections support the financial performance of the cardiac cath program which is expected to have a positive bottom line in Project Year 1, resulting from additional procedure volume covering the current fixed costs plus all incremental costs.

3) Appropriate Quality Standards; and

RESPONSE: North Knoxville currently meets the quality standards necessary for the initiation of therapeutic cardiac cath services in its existing cardiac cath lab. NKMC is a Joint Commission-accredited hospital with a history of providing quality care to the community it serves. Notably, all of the ETHC interventional cardiologists who are currently providing diagnostic caths at NKMC and will offer therapeutic cath services upon approval of this Project are board-certified or board-eligible, consistent with the hospital's medical staff bylaws requirement for board certification of its medical staff members.

Moreover, NKMC is currently implementing a Chest Pain Center, with an expected completion date of June 2018. Similar to PRMC and Turkey Creek, North Knoxville will ensure its Chest Pain Center meets the criteria of the American College of Cardiology ("ACC") and the American Heart Association ("AHA"), providing highly specialized care devoted to treating patients with acute coronary syndrome. NKMC has established a Chest Pain Committee to oversee its cardiac patient services, including the planned Chest Pain Center accreditation for mid-year 2018. Some of the advantages of the proposed Chest Pain Center to NKMC patients will include the rapid identification of patients presenting with unstable angina (chest pain), decreased time to treatment for heart attack patients, and 24-hour care for chest pain treatment.

4) Orderly Development to adequate and effective health care.

RESPONSE: The proposed modernization and upgrade of NKMC's existing cardiac cath services will positively contribute to the orderly development of health care services in the service area by providing a needed, time-sensitive interventional treatment to service area residents who rely on NKMC for their care. The proposed project will have no adverse impact on any existing provider because the project is needed to better serve existing Tennova patients.

Moreover, NKMC has the infrastructure in place to cost-effectively and efficiently begin offering therapeutic cardiac cath services in its existing lab. Notably, among those services in place is the support of its medical staff members, particularly the East Tennessee Heart Consultant cardiologists with an office on NKMC campus. ETHC physicians and staff have led the way in bringing cardiac treatments and technology to East Tennessee for almost four decades.

ETHC's experienced team of heart doctors, given the approval to perform both diagnostic and therapeutic services on site at NKMC, will be able to provide NKMC cardiology patients with the full array of its expertise, including:

- Participation in national and global clinical trials that seek more effective treatments for heart disease.
- Minimally invasive techniques to unblock arteries and improve blood flow.
- Heart and vascular rehabilitation services that combine education, support and exercise therapy.
- Cardiovascular diagnosis and imaging technology to determine the type and extent of heart disease.
- Comprehensive heart failure care featuring the latest treatment options.
- Specialized diagnostic and treatment services for heart rhythm disorders.
- Heart Failure Care, utilizing advanced diagnostic technology to determine the cause and extent of heart failure.
- Chest Pain Treatment, rapidly identifying patients presenting with unstable angina (chest pain) to provide fast, state-of-the-art treatment to prevent heart attacks. The ETHC teams are trained and dedicated to providing 24-hour care for the treatment of chest pain.

C. Consent Calendar Justification

If Consent Calendar is requested, please provide the rationale for an expedited review.

A request for Consent Calendar must be in the form of a written communication to the Agency's Executive Director at the time the application is filed.

Not applicable.

4. SECTION A: PROJECT DETAILS 32

A. Owner of the Facility, Agency or Institution

Metro Knoxville HMA, LLC d/b/a Tennova Healthcare		865-632-5600
Name		Phone Number
200 East Blount Avenue, Suite 600		Knox
Street or Route		County
Knoxville	TN	37920
City	State	Zip Code

B. Type of Ownership of Control (Check One)

A.	Sole Proprietorship		F.	Government (State of TN or Political Subdivision)	
B.	Partnership		G.	Joint Venture	
C.	Limited Partnership		H.	Limited Liability Company	X
D.	Corporation (For Profit)		I.	Other (Specify)_____	
E.	Corporation (Not-for-Profit)				

Attach a copy of the partnership agreement, or corporate charter and certificate of corporate existence. Please provide documentation of the active status of the entity from the Tennessee Secretary of State's web-site at https://tnbear.tn.gov/ECommerce/FilingSearch.aspx. **Attachment Section A-4A.**

Describe *the existing or proposed ownership structure of the applicant, including an ownership structure organizational chart. Explain the corporate structure and the manner in which all entities of the ownership structure relate to the applicant. As applicable, identify the members of the ownership entity and each member's percentage of ownership, for those members with 5% ownership (direct or indirect) interest.*

5. Name of Management/Operating Entity (If Applicable)

Not Applicable		
Name		
Street or Route		County
City	State	Zip Code

Website address: _____

For new facilities or existing facilities *without a current management agreement, attach a copy of a draft management agreement that at least includes the anticipated scope of management services to be provided, the anticipated term of the agreement, and the anticipated management fee payment methodology and schedule. For facilities with existing management agreements, attach a copy of the fully executed final contract.* **Attachment Section A-5.**

6A. Legal Interest in the Site of the Institution (Check One)

A.	Ownership**	X	D.	Option to Lease	
B.	Option to Purchase		E.	Other (Specify)	
C.	Lease of _____ Years				

Check appropriate line above: *For applicants or applicant's parent company/owner that currently own the building/land for the project location, attach a copy of the title/deed. For applicants or applicant's parent company/owner that currently lease the building/land for the project location, attach a copy of the fully executed lease agreement. For projects where the location of the project has not been secured, attach a fully executed document including Option to Purchase Agreement, Option to Lease Agreement, or other appropriate documentation. Option to Purchase Agreements* ***must include*** *anticipated purchase price. Lease/Option to Lease Agreements* ***must include*** *the actual/anticipated term of the agreement* ***and*** *actual/anticipated lease expense. The legal interests described herein* ***must be valid*** on the date of the Agency's consideration of the certificate of need application.

*****Please see Attachment A-6A for the site entitlement.***

6B. Attach **a copy of the site's plot plan, floor plan, and if applicable, public transportation route to and from the site** on an 8 1/2" x 11" sheet of white paper, single or double-sided. ***DO NOT SUBMIT BLUEPRINTS***. Simple line drawings should be submitted and need not be drawn to scale.

1) Plot Plan **must include**:

   a. Size of site (***in acres***);

   b. Location of structure on the site;

   c. Location of the proposed construction/renovation; and

   d. Names of streets, roads or highway that cross or border the site.

RESPONSE: A copy of the plot plan of North Knoxville Medical Center's campus is included as Attachment A-6B.1.

2) Attach a floor plan drawing for the facility which includes legible labeling of patient care rooms (noting private or semi-private), ancillary areas, equipment areas, etc. On an 8 ½ by 11 sheet of paper or as many as necessary to illustrate the floor plan.

RESPONSE: A copy of the floor plan of North Knoxville Medical Center's existing cardiac catheterization lab is included as Attachment A-6B.2.

3) Describe the relationship of the site to public transportation routes, if any, and to any highway or major road developments in the area. Describe the accessibility of the proposed site to patients/clients.

RESPONSE: NKMC is located 0.2 miles from I-75, at the Emory Road exit, making it easily accessible by car to residents of the service area. Moreover, NKMC's location outside of the downtown, congested Knoxville area enhances accessibility to the proposed service for all service area residents.

Public transportation is available to Knox County residents through the Knox County Community Action Committee ("CAC") Transit. Knox County CAC Transit provides door-to-door transportation services for residents within the Knoxville/Knox County area that live outside the Knoxville Area Transit ("KAT") service area for essential needs such as medical appointments. (The KAT bus routes do not currently extend to the Emory Road area where NKMC is located.)

Residents outside of the Knoxville/Knox County area may be eligible for transportation services through East Tennessee Human Resource Agency ("ETHRA") Public Transit. ETHRA Public Transit is funded through the Tennessee Department of Transportation and has a service area that includes all of the 11 counties of North Knoxville Medical Center's service area.

Both services offer affordable fares. Some residents may have transit fare covered through TennCare.

Please refer to Attachment A-6B.3 for additional information regarding local and regional transit options available to patients of North Knoxville Medical Center.

Attachment Section A-6A, 6B-1 a-d, 6B-2, 6B-3.

7. Type of Institution (Check as appropriate--more than one response may apply)

A.	Hospital (Specify) Gen Med/Surg	X	H.	Nursing Home	
B.	Ambulatory Surgical Treatment Center (ASTC), Multi-Specialty		I.	Outpatient Diagnostic Center	
C.	ASTC, Single Specialty		J.	Rehabilitation Facility	
D.	Home Health Agency		K.	Residential Hospice	
E.	Hospice		L.	Nonresidential Substitution-Based Treatment Center for Opiate Addiction	
F.	Mental Health Hospital				
G.	Intellectual Disability Institutional Habilitation Facility ICF/IID		M.	Other (Specify)_____	

Check appropriate lines(s).

8. Purpose of Review (Check appropriate lines(s) – more than one response may apply)

A.	New Institution		F.	Change in Bed Complement [*Please note the type of change by underlining the appropriate response: Increase, Decrease, Designation, Distribution, Conversion, Relocation]*	
B.	Modifying an ASTC with limitation still required per CON				
C.	Addition of MRI Unit				
D.	Pediatric MRI				
E.	Initiation of Health Care Service as defined in T.C.A. §68-11-1607(4) (Specify) Expansion of Diagnostic Cardiac Cath Services to Include Therapeutic Cath	X	G.	Satellite Emergency Dept.	
			H.	Change of Location	
			I.	Other (Specify)_____	

9. **Medicaid/TennCare, Medicare Participation** 35

MCO Contracts [Check all that apply]

_X_AmeriGroup _X_United Healthcare Community Plan _X_BlueCare _X_TennCare Select

Medicare Provider Number *44-0120*

Medicaid Provider Number *44-0120*

Certification Type *Hospital*

RESPONSE: North Knoxville is a satellite location of Metro Knoxville HMA, LLC d/b/a Tennova Healthcare, which includes three hospitals: PRMC, NKMC, and Turkey Creek. All three campuses operate under a single hospital license and Medicare provider number, and have a single, shared medical staff.

Tennova Healthcare currently contracts through master provider agreements with each of the TennCare Managed Care Organizations ("MCO"). Tennova intends to continue participation in these plans; thus, NKMC's will continue participation in the plans as well.

If a new facility, will certification be sought for Medicare and/or Medicaid/TennCare?

Medicare __Yes __No __N/A Medicaid/TennCare __Yes __No __N/A

RESPONSE: *Not Applicable. North Knoxville Medical Center is an existing, licensed hospital.*

10. Bed Complement Data

A. Please indicate current and proposed distribution and certification of facility beds. **NKMC data is below.

**** Please see bed complement for Metro Knoxville HMA, LLC, d/b/a Tennova Healthcare in Attachment A-10A.**

	Current Licensed	Beds Staffed	Beds Proposed	*Beds Approved	**Beds Exempted	TOTAL Beds at Completion
1) Medical *(combined med/surg)*	96	72				96
2) Surgical						
3) ICU/CCU	12	11				12
4) Obstetrical						
5) NICU						
6) Pediatric						
7) Adult Psychiatric						
8) Geriatric Psychiatric						
9) Child/Adolescent Psychiatric						
10) Rehabilitation						
11) Adult Chemical Dependency						
12) Child/Adolescent Chemical Dependency						
13) Long-Term Care Hospital						
14) Swing Beds						
15) Nursing Home – SNF (Medicare only)						
16) Nursing Home – NF (Medicaid only)						
17) Nursing Home – SNF/NF (dually certified Medicare/Medicaid)						
18) Nursing Home – Licensed (non-certified)						
19) ICF/IID						
20) Residential Hospice						
TOTAL	108	83				108

**Beds approved but not yet in service* ***Beds exempted under 10% per 3 year provision*

B. Describe the reasons for change in bed allocations and describe the impact the bed change will have on the applicant facility's existing services.

Not Applicable. No changes in bed capacity or allocation are proposed as part of this project.

C. Please identify all the applicant's outstanding Certificate of Need projects that have a licensed bed change component. If applicable, complete chart below.

CON Number(s)	CON Expiration Date	Total Licensed Beds Approved
N/A		

11. Home Health Care Organizations – Home Health Agency, Hospice Agency (excluding Residential Hospice), identify the following by checking all that apply:

Not Applicable

	Existing Licensed County	Parent Office County	Proposed Licensed County		Existing Licensed County	Parent Office County	Proposed Licensed County
Anderson	☐	☐	☐	Lauderdale	☐	☐	☐
Bedford	☐	☐	☐	Lawrence	☐	☐	☐
Benton	☐	☐	☐	Lewis	☐	☐	☐
Bledsoe	☐	☐	☐	Lincoln	☐	☐	☐
Blount	☐	☐	☐	Loudon	☐	☐	☐
Bradley	☐	☐	☐	McMinn	☐	☐	☐
Campbell	☐	☐	☐	McNairy	☐	☐	☐
Cannon	☐	☐	☐	Macon	☐	☐	☐
Carroll	☐	☐	☐	Madison	☐	☐	☐
Carter	☐	☐	☐	Marion	☐	☐	☐
Cheatham	☐	☐	☐	Marshall	☐	☐	☐
Chester	☐	☐	☐	Maury	☐	☐	☐
Claiborne	☐	☐	☐	Meigs	☐	☐	☐
Clay	☐	☐	☐	Monroe	☐	☐	☐
Cocke	☐	☐	☐	Montgomery	☐	☐	☐
Coffee	☐	☐	☐	Moore	☐	☐	☐
Crockett	☐	☐	☐	Morgan	☐	☐	☐
Cumberland	☐	☐	☐	Obion	☐	☐	☐
Davidson	☐	☐	☐	Overton	☐	☐	☐
Decatur	☐	☐	☐	Perry	☐	☐	☐
DeKalb	☐	☐	☐	Pickett	☐	☐	☐
Dickson	☐	☐	☐	Polk	☐	☐	☐
Dyer	☐	☐	☐	Putnam	☐	☐	☐
Fayette	☐	☐	☐	Rhea	☐	☐	☐
Fentress	☐	☐	☐	Roane	☐	☐	☐
Franklin	☐	☐	☐	Robertson	☐	☐	☐
Gibson	☐	☐	☐	Rutherford	☐	☐	☐
Giles	☐	☐	☐	Scott	☐	☐	☐
Grainger	☐	☐	☐	Sequatchie	☐	☐	☐
Greene	☐	☐	☐	Sevier	☐	☐	☐
Grundy	☐	☐	☐	Shelby	☐	☐	☐
Hamblen	☐	☐	☐	Smith	☐	☐	☐
Hamilton	☐	☐	☐	Stewart	☐	☐	☐
Hancock	☐	☐	☐	Sullivan	☐	☐	☐
Hardeman	☐	☐	☐	Sumner	☐	☐	☐
Hardin	☐	☐	☐	Tipton	☐	☐	☐
Hawkins	☐	☐	☐	Trousdale	☐	☐	☐
Haywood	☐	☐	☐	Unicoi	☐	☐	☐
Henderson	☐	☐	☐	Union	☐	☐	☐
Henry	☐	☐	☐	Van Buren	☐	☐	☐
Hickman	☐	☐	☐	Warren	☐	☐	☐
Houston	☐	☐	☐	Washington	☐	☐	☐
Humphreys	☐	☐	☐	Wayne	☐	☐	☐
Jackson	☐	☐	☐	Weakley	☐	☐	☐
Jefferson	☐	☐	☐	White	☐	☐	☐
Johnson	☐	☐	☐	Williamson	☐	☐	☐
Knox	☐	☐	☐	Wilson	☐	☐	☐
Lake	☐	☐	☐				

12. Square Footage and Cost Per Square Footage Chart – *Not Applicable*

Unit/Department	Existing Location	Existing SF	Temporary Location	Proposed Final Location	Proposed Final Square Footage		
					Renovated	New	Total
Unit/Department GSF Sub-Total							
Other GSF Total							
Total GSF							
*Total Cost							
**Cost Per Square Foot							
Cost per Square Foot Is Within Which Range *(For quartile ranges, please refer to the Applicant's Toolbox on www.tn.gov/hsda)*					☐ Below 1st Quartile ☐ Between 1st and 2nd Quartile ☐ Between 2nd and 3rd Quartile ☐ Above 3rd Quartile	☐ Below 1st Quartile ☐ Between 1st and 2nd Quartile ☐ Between 2nd and 3rd Quartile ☐ Above 3rd Quartile	☐ Below 1st Quartile ☐ Between 1st and 2nd Quartile ☐ Between 2nd and 3rd Quartile ☐ Above 3rd Quartile

RESPONSE: ***Not Applicable*. The proposed project does not include any renovation or new construction.**

* The Total Construction Cost should equal the Construction Cost reported on line A5 of the Project Cost Chart.

** Cost per Square Foot is the construction cost divided by the square feet. Please do not include contingency costs.

13. MRI, PET, and/or Linear Accelerator – *Not Applicable*

1. Describe the acquisition of any Magnetic Resonance Imaging (MRI) scanner that is adding a MRI scanner in counties with population less than 250,000 or initiation of pediatric MRI in counties with population greater than 250,000 and/or
2. Describe the acquisition of any Positron Emission Tomographer (PET) or Linear Accelerator if initiating the service by responding to the following:

A. Complete the chart below for acquired equipment.

☐ Linear Accelerator	Mev _____ Types: ☐ SRS ☐ IMRT ☐ IGRT ☐ Other _____ Total Cost*: _____ ☐ New ☐ Refurbished	☐ By Purchase ☐ By Lease Expected Useful Life (yrs) ___ ☐ If not new, how old? (yrs) _____
☐ MRI	Tesla: ____ Magnet: ☐ Breast ☐ Extremity ☐ Open ☐ Short Bore ☐ Other _____ Total Cost*: _____ ☐ New ☐ Refurbished	☐ By Purchase ☐ By Lease Expected Useful Life (yrs) ___ ☐ If not new, how old? (yrs) _____
☐ PET	☐ PET only ☐ PET/CT ☐ PET/MRI Total Cost*: ☐ New ☐ Refurbished	☐ By Purchase ☐ By Lease Expected Useful Life (yrs) ☐ If not new, how old? (yrs)

* As defined by Agency Rule 0720-9-.01(13)

B. In the case of equipment purchase, include a quote and/or proposal from an equipment vendor. In the case of equipment lease, provide a draft lease or contract that at least includes the term of the lease and the anticipated lease payments along with the fair market value of the equipment.

C. Compare lease cost of the equipment to its fair market value. Note: Per Agency Rule, the higher cost must be identified in the project cost chart.

D. Schedule of Operations:

Location	Days of Operation (*Sunday through Saturday*)	Hours of Operation (*example: 8 am – 3 pm*)
Fixed Site *(Applicant)*		
Mobile Locations *(Applicant)*		
(Name of Other Location)		
(Name of Other Location)		

E. Identify the clinical applications to be provided that apply to the project.

F. If the equipment has been approved by the FDA within the last five years provide documentation of the same.

SECTION B: GENERAL CRITERIA FOR CERTIFICATE OF NEED

In accordance with T.C.A. § 68-11-1609(b), "no Certificate of Need shall be granted unless the action proposed in the application for such Certificate is necessary to provide needed health care in the area to be served, can be economically accomplished and maintained, will provide health care that meets appropriate quality standards, and will contribute to the orderly development of health care." Further standards for guidance are provided in the State Health Plan developed pursuant to T.C.A. § 68-11-1625.

The following questions are listed according to the four criteria: (1) Need, (2) Economic Feasibility, (3) Applicable Quality Standards, and (4) Contribution to the Orderly Development of Health Care. Please respond to each question and provide underlying assumptions, data sources, and methodologies when appropriate. *Please type each question and its response on an 8 1/2" x 11" white paper, single-sided or double sided*. All exhibits and tables must be attached to the end of the application in correct sequence identifying the question(s) to which they refer, unless specified otherwise. ***If a question does not apply to your project, indicate "Not Applicable (NA)."***

QUESTIONS

SECTION B: NEED

A. **Provide a response to each criterion and standard in Certificate of Need Categories in the State Health Plan that are applicable to the proposed project. Criteria and standards can be obtained from the Tennessee Health Services and Development Agency or found on the Agency's website at http://www.tn.gov/hsda/article/hsda-criteria-and-standards.**

Standards and Criteria
Regarding Certificate of Need Applications for All Cardiac Catheterization Services

Applicants proposing to provide any type of cardiac catheterization services must meet the following minimum standards:

1. Compliance with Standards: The Division of Health Planning is working with stakeholders to develop a framework for greater accountability to these Standards and Criteria. Applicants should indicate whether they intend to collaborate with the Division and other stakeholders on this matter.

RESPONSE: NKMC will continue to maintain compliance with the Standards and Criteria for Cardiac Catheterization Services. NKMC intends to continue to collaborate with the Division and other stakeholders as a framework for greater accountability is developed.

2. Facility Accreditation: If the applicant is not required by law to be licensed by the Department of Health, the applicant should provide documentation that the facility is fully accredited or will pursue accreditation by the Joint Commission or another appropriate accrediting authority recognized by the Centers for Medicare and Medicaid Services (CMS).

RESPONSE: NKMC is fully accredited by the Joint Commission and is licensed and in good standing with the Tennessee Department of Health. Documentation regarding the status of NKMC's licensure and accreditation is located in Attachment B-Need-A.2.

3. Emergency Transfer Plan: Applicants for cardiac catheterization services located in a facility without open heart surgery capability should provide a formalized written protocol for immediate and efficient transfer of patients to a nearby open heart surgical facility (within 60 minutes) that is reviewed/tested on a regular (quarterly) basis.

RESPONSE: NKMC has in place an emergency transfer plan with Physicians Regional Medical Center and Turkey Creek, both which are part of Tennova Healthcare and have open heart surgery capability. A copy of the transfer protocol is included in Attachment B-Need-A.3.

4. Quality Control and Monitoring: Applicants should document a plan to monitor the quality of its cardiac catheterization program, including, but not limited to, program outcomes and efficiency. In addition, the applicant should agree to cooperate with quality enhancement efforts sponsored or endorsed by the State of Tennessee, which may be developed per Policy Recommendation 2.

RESPONSE: Tennova Healthcare maintains a comprehensive quality program that encompasses patient outcomes and patient safety, performance comparisons to regional and national benchmarks, and operational efficiency goals. Documentation of Tennova Healthcare's quality program is located in Attachment B-Need-A.4.

Additionally, NKMC will cooperate with quality enhancement efforts sponsored or endorsed by the State of Tennessee.

5. Data Requirements: Applicants should agree to provide the Department of Health and/or the Health Services and Development Agency with all reasonably requested information and statistical data related to the operation and provision of services and to report that data in the time and format requested. As a standard of practice, existing data reporting streams will be relied upon and adapted over time to collect all needed information.

RESPONSE: North Knoxville will provide all reasonably requested information and statistical data related to the operation and provision of services to the Department of Health and/or the Health Services and Development Agency ("HSDA") in a timely manner as requested. As an existing provider, Tennova Healthcare, including NKMC, currently provides information and statistical data to the Department of Health and HSDA in formats that include the JARs submitted by each Tennova hospital.

6. Clinical and Physical Environment Guidelines: Applicants should agree to document ongoing compliance with the latest clinical guidelines of the American College of Cardiology/Society for Cardiac Angiography and Interventions Clinical Expert Consensus Document on Cardiac Catheterization Laboratory Standards (ACC Guidelines). As of the adoption of these Standards and Criteria, the latest version (2001) may be found online at: http://www.acc.org/qualityandscience/clinical/consensus/angiography/dirIndex.htm.

Where providers are not in compliance, they should maintain appropriate documentation stating the reasons for noncompliance and the steps the provider is taking to ensure quality. These guidelines include, but are not limited to, physical facility requirements, staffing, training, quality assurance, patient safety, screening patients for appropriate settings, and linkages with supporting emergency services.

RESPONSE: NKMC will comply with the latest ACC clinical guidelines, and document its ongoing compliance. Tennova Healthcare currently offers cardiac cath services in the Knoxville area at three facilities (PRMC, NKMC, and Turkey Creek), all of which comply with these standards.

The knowledge and expertise of Tennova's two providers of therapeutic cardiac cath services (PRMC and Turkey Creek) will enable NKMC to quickly and efficiently adapt to the additional responsibilities associated with the provision of interventional cardiac cath services in its existing diagnostic cath lab. A shared medical staff with experienced cardiologists, proven training programs, existing quality assurance efforts, established approaches to patient screening and safety, and relationships with emergency service providers will enable North Knoxville to develop its new interventional cardiac cath program on a solid foundation.

7. Staffing Recruitment and Retention: The applicant should generally describe how it intends to maintain an adequate staff to operate the proposed service, including, but not limited to, any plans to partner with an existing provider for training and staff sharing.

RESPONSE: As an initial matter, it should be noted that minimal additional staff is needed to implement the proposed modernization and expansion of existing diagnostic cath services to include therapeutic cath services. Both new and existing staff will be required to be on-call in order to enable the service to be available 24 hours per day, 7 days a week.

Some of the existing staff members will require training related to the care required for therapeutic patients. NKMC will work with its sister hospitals (PRMC and Turkey Creek) for existing staff members to receive the necessary training to care for therapeutic patients, including moving some clinical staff who are currently performing interventional cardiac caths from PRMC to NKMC to supplement staffing and provide training for current NKMC staff.

Specific to physicians who will provide the service, NKMC already has on its staff interventional cardiologists with a part-time presence in the ETHC office on NKMC's hospital campus who will expand their presence on NKMC's campus immediately upon approval of the proposed expansion project.

When new staffing is needed, NKMC will utilize its proven methods of staff recruitment and retention to ensure adequate staffing for the cardiac cath service is in place. For example, Tennova has a robust and long-standing recruiting process with a demonstrated track record of hiring staff, including use of healthcare program affiliations and national online recruitment, among other means. As a statewide healthcare network, Tennova also has the ability to recruit across a wide geographic region and offer relocation opportunities for staff interested in moving to the Knoxville area.

Tennova Healthcare's retention tools include a comprehensive array of benefits that include medical, dental and vision insurance coverage, life and disability insurance benefits, tuition reimbursement and a 401K retirement plan. As a provider with multiple hospitals in the Knoxville area, Tennova also has the ability to provide career growth opportunities that might not exist at a smaller, single-site institution. Thus, as demonstrated, staffing recruitment and retention for the proposed service expansion will not be a problem for NKMC.

8. Definition of Need for New Services: A need likely exists for new or additional cardiac catheterization services in a proposed service area if the average current utilization for all existing and approved providers is equal to or greater than 70% of capacity (i.e., 70% of 2000 cases) for the proposed service area.

RESPONSE: The 11-county service area aggregate 3-year utilization for all existing and approved providers is 123.2%, which is significantly greater than 70% utilization threshold indicating that need exists in the service area. Please refer to Attachment B-Need-A.8 for Cardiac Cath Calculations from the Tennessee Department of Health, Division of Policy, Planning and Assessment for details.

9. Proposed Service Areas with No Existing Service: In proposed service areas where no existing cardiac catheterization service exists, the applicant must show the data and methodology used to estimate the need and demand for the service. Projected need and demand will be measured for applicants proposing to provide services to residents of those areas as follows:

Need. The projected need for a service will be demonstrated through need-based epidemiological evidence of the incidence and prevalence of conditions for which diagnostic and/or therapeutic catheterization is appropriate within the proposed service area.

Demand. The projected demand for the service shall be determined by the following formula:

A. Multiply the age group-specific historical state utilization rate by the number of residents in each age category for each county included in the proposed service area to produce the projected demand for each age category;

B. Add each age group's projected demand to determine the total projected demand for cardiac catheterization procedures for the entire proposed service area.

RESPONSE: Not applicable. NKMC serves patients from an 11-county service area, with existing cardiac cath services that are highly utilized (123.2% aggregate).

10. Access: In light of Rule 0720-4-.01 (1), which lists the factors concerning need on which an application may be evaluated, the HSDA may decide to give special consideration to an applicant:

a. Who is offering the service in a medically underserved area as designated by the United States Health Resources and Services Administration;

b. Who documents that the service area population experiences a prevalence, incidence and/or mortality from heart and cardiovascular diseases or other clinical conditions applicable to cardiac catheterization services that is substantially higher than the State of Tennessee average;

c. Who is a "safety net hospital" as defined by the Bureau of TennCare Essential Access Hospital payment program; or

d. Who provides a written commitment of intention to contract with at least one TennCare MCO and, if providing adult services, to participate in the Medicare program.

RESPONSE: NKMC serves an 11-county area that is comprised of medically underserved areas, many of which have higher mortality rates from heart and cardiovascular diseases compared to the State of Tennessee as a whole. Additionally, NKMC currently contracts with four (4) Tenncare MCOs (AmeriGroup, United Healthcare Community Plan, BlueCare, and TennCare Select) and participates in the Medicare program.

Details follow.

Service Area is Comprised of Medically Underserved Areas

Much of NKMC's service area population resides in Medically Underserved Areas ("MUA"), as designated by the United States Health Resources and Services Administration ("HRSA"). In fact, all 11 counties are currently designated in whole or in part as Medically Underserved, which is based in part on a lack of access to primary care health services.

The following table provides the index score for service area MUAs. The index is based on four criteria: population-to-provider ratio, percent of the population below the federal poverty level, percent of the population over age 65, and the infant mortality rate. Areas with an *index of 62.0 or less qualify for a MUA designation*. As shown below, many communities in the 11-county service area have HRSA index scores well below the 62.0 threshold.

Moreover, many of these areas have been designated as MUAs for decades, confirming that enhancing access to timely care is the best approach to increase the health status of the residents in these communities. NKMC currently serves the residents of these communities, and the proposed modernization and expansion of its diagnostic cardiac cath services will allow the hospital to further its current efforts to meet the needs of these communities.

Table 1
Medically Underserved Areas
By County and HRSA Service Area

County	HRSA Service Area Name	Index Score	Year Designated
Knox County:			
Knox	Knox Service Area – 03246	53.60	1982
Knox	Knox Service Area – 03247	53.60	1982
Knox	Knox Service Area – 03263	57.63	1994
Other Service Area Counties:			
Anderson	Anderson Service Area	60.50	1984
Campbell	Campbell Service Area	41.40	1978
Claiborne	Claiborne County	61.60	1978
Cocke	Cocke County	53.80	1978
Grainger	Grainger County	52.60	1978
Hamblen	Whitesburg Service Area	61.30	1994
Jefferson	Chestnut Hill Division Service Area	59.90	1984
Scott	Scott Service Area	41.50	1978
Scott	Scott County	57.00	2015
Sevier	Dunn Creek Division	45.60	1994
Union	Union Service Area	56.20	1978

Source: Health Resources & Services Administration Data Warehouse.
Notes:
Index score applies to the entire Medically Underserved Area, on a scale from 0 (highest need) to 100 (lowest need).
Year designated is when the MUA was originally designated as a needy area.

Service Area Population Experiences Higher Heart Disease Death Rates than Tennessee

As shown in the table below, the vast majority of service area counties (8 out of 11, or 73%) have higher heart disease death rates than the state as a whole. Of those counties with higher death rates, Campbell, Claiborne, and Cocke Counties have significantly higher heart disease death rates than Tennessee as a whole. As shown below, the service area as a whole has a higher heart disease death rate than Tennessee.

Table 2
Diseases of the Heart
Deaths and Rates per 100,000 Population, 2016

County	Deaths	Rate
Knox	922	202.1
Anderson	189	248.9
Campbell	138	347.5
Claiborne	123	387.1
Cocke	176	499.8
Grainger	61	264.1
Hamblen	161	252.4
Jefferson	160	298.9
Scott	42	191.5
Sevier	234	242.1
Union	41	214.3
Total Service Area	**2,247**	**245.1**
State of Tennessee	**15,434**	**232.1**

Sources & Notes: TN Department of Health, Division of Policy, Planning and Assessment. Tennessee Resident Data.

In addition to having higher heart disease death rates than Tennessee as a whole, the outlying rural counties served by NKMC generally also have lower per capita income, less education, and higher rates of uninsured than residents in Knox County or the state of Tennessee as a whole. For comparative purposes only, the U.S. average is provided in the following table.

Table 3
Demographic Overview by Service Area County
Supports Special Consideration of Need by HSDA

County	Bachelor's Degree or Higher (1)	Persons with a Disability (2)	Persons without Health Insurance (3)	Per Capita Income (4)
Knox	35.7%	9.3%	10.8%	$28,980
Anderson	24.0%	14.0%	10.2%	$26,072
Campbell	10.6%	18.4%	12.6%	$19,948
Claiborne	13.2%	15.5%	12.3%	$19,215
Cocke	10.2%	17.7%	11.7%	$18,959
Grainger	11.6%	17.9%	13.0%	$19,850
Hamblen	16.0%	13.8%	14.4%	$20,642
Jefferson	15.6%	14.6%	12.1%	$22,674
Scott	8.9%	18.8%	12.4%	$21,011
Sevier	17.5%	13.4%	16.7%	$22,773
Union	10.0%	14.4%	15.3%	$19,030
State of Tennessee	**25.4%**	**11.2%**	**10.6%**	**$26,019**
United States	**30.3%**	**8.6%**	**10.1%**	**$29,829**

Source: United States Census Bureau, American Community Survey (ACS), 5-Year Estimates and 2015 Small Area Health Insurance Estimates (SAHIE).
Notes:
(1) Percent of Persons Age 25+, 2012-2016.
(2) Percent under Age 65 Years, 2012-2016.
(3) Percent under Age 65 Years, 2015 Estimate.
(4) Per Capita Income in the Past Twelve Months, 2016 dollars, 2012-2016.

Specific Standards and Criteria for the Provision of Diagnostic Cardiac Catheterization Service Only:

If an applicant does not intend to provide therapeutic cardiac catheterization services, the HSDA should place a condition on the resulting CON limiting the applicant to providing diagnostic cardiac catheterization services only. *Applicants proposing to provide only diagnostic cardiac catheterization services should meet the following minimum standards*:

11. Minimum Volume Standard: Such applicants should demonstrate that the proposed service utilization will be a minimum of 300 diagnostic cardiac catheterization cases per year by its third year of operation. Annual volume shall be measured based upon a two-year average which shall begin at the conclusion of the applicant's first year of operation. If the applicant is proposing services in a rural area where the HSDA determines that access to diagnostic cardiac catheterization services has been limited, and if the applicant is pursuing a partnership with a tertiary facility to share and train staff, the Agency may determine that a minimum volume of 200 cases per year is acceptable. Only cases including diagnostic cardiac catheterization procedures as defined by these Standards and Criteria may count towards meeting this minimum volume standard.

RESPONSE: Not Applicable. NKMC is an existing provider of diagnostic cardiac cath services and is applying for the expansion of these services to include therapeutic cardiac cath services.

12. High Risk/Unstable Patients: Such applicants should (a) delineate the steps, based on the ACC Guidelines, that will be taken to ensure that high-risk or unstable patients are not catheterized in the facility, and (b) certify that therapeutic cardiac catheterization services will not be performed in the facility unless and until the applicant has received Certificate of Need approval to provide therapeutic cardiac catheterization services.

RESPONSE: Not Applicable. NKMC is an existing provider of diagnostic cardiac cath services and is applying for the expansion of these services to include therapeutic cardiac cath services.

13. Minimum Physician Requirements to Initiate a New Service: The initiation of a new diagnostic cardiac catheterization program should require at least one cardiologist who performed an average of 75 diagnostic cardiac catheterization procedures over the most recent five year period. All participating cardiologists in the proposed program should be board certified or board eligible in cardiology and any relevant cardiac subspecialties.

RESPONSE: Not Applicable. NKMC is an existing provider of diagnostic cardiac cath services and is applying for the expansion of these services to include therapeutic cardiac cath services.

Specific Standards and Criteria for the Provision of Therapeutic Cardiac Catheterization Services

Applicants proposing to provide therapeutic cardiac catheterization services must meet the following minimum standards:

14. Minimum Volume Standard: Such applicants should demonstrate that the proposed service utilization will be a minimum of 400 diagnostic and/or therapeutic cardiac catheterization cases per year by its third year of operation. At least 75 of these cases per year should include a therapeutic cardiac catheterization procedure. Annual volume shall be measured based upon a two-year average which shall begin at the conclusion of the applicant's first year of operation. Only cases including diagnostic and therapeutic cardiac catheterization procedures as defined by these Standards and Criteria shall count towards meeting this minimum volume standard.

RESPONSE: North Knoxville Medical Center anticipates meeting the established requirement of 400 diagnostic and/or therapeutic cardiac catheterization cases per year by the third year of operation of the expanded cardiac cath service at the hospital, including at least 75 therapeutic cardiac caths, by the end of Project Year 1.

NKMC transfers approximately 400 patients annually from its ED and inpatient units because those patients likely need a therapeutic (interventional) cardiac cath procedure. These patients, who are currently choosing to receive health care services at North Knoxville, must be transported to another facility because NKMC is not licensed to offer therapeutic cath services. The inability of NKMC to provide therapeutic cath services ultimately delays these patients receiving needed treatment to restore blood flow to their heart. Because "every second counts" and "time is muscle" for cardiac patients, these unnecessary delays in care result in less than optimal quality of care for patients who currently rely on and seek care at North Knoxville Medical Center.

At the same time that NKMC is transferring a significant number of patients annually, NKMC has on its staff and campus highly-qualified and trained interventional cardiologists who are capable of performing therapeutic procedures, and who already serve a significant number of therapeutic cath patients from the hospital's 11-county service area at Tennova's PRMC campus. As stated previously, ETHC interventional cardiologists currently providing diagnostic caths and with office hours on the NKMC campus will expand their presence on the NKMC campus upon approval for NKMC to begin providing therapeutic (interventional) services in its existing cath lab.

NKMC projects to reach the minimum threshold standard by the end of Project Year 1 based solely on shifting a small portion of existing Tennova Healthcare service area patients now cared for by ETHC cardiologists at PRMC to NKMC, as shown below. Notably, the projected volume in Project Year 1 is consistent with NKMC's annual volume of cardiac inpatients and ED patients currently transferred because they likely require an interventional cath procedure.

Each step in the process to project NKMC volumes in Project Years 1 and 2 follow.

Step 1:
Determine the ETHC interventional cardiologists' current outpatient cardiac cath volume at PRMC for residents from the 11-county area.

Table 4
ETHC Physicians' Cardiac Cath Outpatients at PRMC from NKMC Service Area Counties, CY2017*

Service Area County	Diagnostic Cardiac Cath	Therapeutic Cardiac Cath	Total	Percent of Total
Anderson	39	13	52	4.7%
Campbell	41	16	57	5.2%
Claiborne	36	29	65	5.9%
Cocke	68	22	90	8.2%
Grainger	20	4	24	2.2%
Hamblen	26	10	36	3.3%
Jefferson	87	36	123	11.2%
Knox	367	171	538	49.1%
Scott	9	5	14	1.3%
Sevier	29	9	38	3.5%
Union	40	19	59	5.4%
Total	**762**	**334**	**1,096**	**100.0%**
% of Total Caths	70%	30%	100%	

Source & Notes:
Tennova Healthcare internal data available for January 1 through December 19, 2017. For ease of review, data referenced as CY2017.
*The physicians included in the analyses are ETHC interventional cardiologists with an office-based presence on the NKMC campus and who currently provide diagnostic caths at NKMC, including Drs. Yasir Akhtar, Fahd Chaudhry, David Cox, Osareme Irivbogbe, Barry Michelson, and Charles Treasure.

Please note that only PRMC outpatients were considered in the redirection scenarios. Forecasts conservatively do not include any shifting of PRMC inpatients to NKMC due to the high level of inpatient services generally provided at PRMC, and the need for NKMC to provide therapeutic caths to 'lower-risk' patients.

Step 2:
Estimate the service area cardiac cath patients at PRMC (currently cared for by ETHC interventional cardiologists performing cath procedures at NKMC) who would likely shift from PRMC to NKMC.

Table 5
NKMC Projected Cardiac Cath Volume,
Project Years 1 and 2

Calculations	**Year 1**	**Year 2**
Service Area Cardiac Cath Diagnostic Patients Expected to Shift from PRMC to NKMC (% *multiplied by CY17 volume in Table 4)*	40%	50%
Equals Projected Diagnostic Caths	305	381
Plus Therapeutic Caths	101	126
***Equals* Total Projected Cardiac Caths**	**406**	**507**
Therapeutic Caths as % of Total Caths	25%	25%

As reflected in the table above, NKMC reasonably projects that therapeutic cardiac caths will comprise approximately 25% of its total cardiac cath cases because NKMC will provide caths for low-risk cases at its hospital, while still transferring high-risk cases to a provider with on-site OHS backup. The reasonableness of this projection is further supported by the following:

- Approximately 39% of service area residents' total cardiac cath cases in CY2017 (inpatients and outpatients at all locations) performed by the identified ETHC interventional cardiologists were therapeutic, compared to the projected 25% therapeutic caths at NKMC. (*See* Table 6 below (Line 1), showing 1,119 therapeutic caths out of a total 2,903 total caths.)

- A higher percentage (30%) of the ETHC interventional cardiologists' service area outpatient caths performed at PRMC in CY2017 were therapeutic compared to the 25% therapeutic caths forecasted at NKMC. (*See* Table 4 above for CY17 distribution by type of procedure.)

- The expectation that approximately 25% of total caths will be therapeutic at a hospital offering therapeutic cath services without on-site OHS is consistent with the HSDA's findings in the approved projects for Chattanooga-Hamilton Hospital Authority d/b/a Erlanger East Hospital (CN1502-005) and Dyersburg Regional Medical Center (CN1403-007).

In total, NKMC's forecast is conservative because it assumes that only half of the identified ETHC interventional cardiologists' service area outpatients served will choose to receive care at NKMC rather than PRMC. Realistically, a larger percent of service area patients than forecasted in Project Years 1 and 2 will likely prefer to receive cardiac cath services closer to their homes in an easily accessible location outside of downtown Knoxville, on a more consumer-friendly campus than PRMC. Additionally, emergency medical services (ambulances) that currently bypass NKMC because it does not have therapeutic cardiac cath capabilities will no longer do so, resulting in increased patient volume above that considered in the redirection scenarios above.

Another reasonableness test regarding projected volume is to determine the percentage of the identified physicians' service area patients NKMC projects to shift from PRMC. To that end, the following table shows the total number of cardiac caths performed by Drs. Akhtar, Chaudhry, Cox, Irivbogbe, Michelson, and Treasure in CY2017 (through December 17th) on service area residents, regardless of the hospital campus at which the procedure was performed. As shown, the forecasted volume of redirected patients for these ETHC interventional cardiologists represents a small percentage of the physicians' total historical volume, further supporting NKMC's ability to meet the minimum volume standards for therapeutic cardiac cath services.

Table 6
Select Physicians' Projected Year 2 NKMC Volume
as a % of the Physicians' Current Cath Volume (CY2017)

Calculations	Diagnostic Cardiac Cath	Therapeutic Cardiac Cath	Total Cardiac Caths
Select Physicians' Total Cardiac Caths provided to Service Area Residents, CY17*	1,784	1,119	2,903
Divided by Projected Year 2 Caths, NKMC (*see* prior analyses)	381	126	507
Equals % of Physicians' Total Service Area Caths provided at NKMC, Project Year 2	21.4%	11.3%	17.5%

Sources & Note:
Tennova Healthcare internal data available for January 1 through December 19, 2017.
*Includes service area inpatient and outpatient cardiac caths performed at the three Tennova Hospital campuses (PRMC, Turkey Creek, and NKMC) combined.

Finally, for ease of reference, the following table provides historical and projected volumes at NKMC.

Table 7
North Knoxville Medical Center: Historical & Projected Cardiac Cath Volumes

	Historical Volume			Projected Volume	
Type of Cath	**CY15**	**CY16**	**CY17**	**Year 1**	**Year 2**
Diagnostic	101	120	112	305	381
Therapeutic	0	0	0	101	126
Total Cases	**101**	**120**	**112**	**406**	**507**
Weighted Cases	101.0	120.0	112.0	507.0	633.0
Lab Utilization	**5.1%**	**6.0%**	**5.6%**	**25.4%**	**31.7%**

Please note that the slight decline between CY16 and CY17 at NKMC reflects the increasing difficulty of hospitals with diagnostic-only cardiac cath services to serve a significant number of patients, as physicians and patients prefer to receive care in a facility that can provide therapeutic (interventional) services when needed.

15. Open Heart Surgery Availability: Acute care facilities proposing to offer adult therapeutic cardiac catheterization services shall not be required to maintain an on-site open heart surgery program. Applicants without on-site open heart surgery should follow the most recent American College of Cardiology/American Heart Association/Society for Cardiac Angiography and Interventions Practice Guideline Update for Percutaneous Coronary Intervention (ACC/AHA/SCAI Guidelines). As of the adoption of these Standards and Criteria, the latest version of this document (2007) may be found online at: http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.107.185159

Therapeutic procedures should not be performed in freestanding cardiac catheterization laboratories, whether fixed or mobile. Mobile units may, however, perform therapeutic procedures provided the mobile unit is located on a hospital campus and the hospital has on-site open heart surgery. In addition, hospitals approved to perform therapeutic cardiac catheterizations without on-site open heart surgery backup may temporarily perform these procedures in a mobile laboratory on the hospital's campus during construction impacting the fixed laboratories.

RESPONSE: NKMC has in place an emergency transfer plan with Physicians Regional Medical Center and Turkey Creek, both which are part of Tennova Healthcare and have open heart surgery capability. A copy of the transfer protocol is included in Attachment B-Need-A.3.

NKMC will follow the most recent ACC/AHA/SCAI Guidelines as they relate to therapeutic cardiac cath providers without on-site open heart surgical services. As NKMC's existing cardiac cath services are hospital-based and within the walls of the existing licensed hospital, therapeutic procedures will not be performed either in a freestanding cardiac cath lab or a mobile cardiac cath unit.

16. Minimum Physician Requirements to Initiate a New Service: The initiation of a new therapeutic cardiac catheterization program should require at least two cardiologists with at least one cardiologist having performed an average of 75 therapeutic procedures over the most recent five year period. All participating cardiologists in the proposed program should be board certified or board eligible in cardiology and any relevant cardiac subspecialties.

RESPONSE: NKMC's proposed therapeutic cardiac cath service will be supported by experienced ETHC interventional cardiologists who are currently on the shared medical staff of Tennova Healthcare. The identified ETHC cardiologists are Board-certified or Board-eligible in Cardiovascular Disease and Interventional Cardiology, and perform a high volume of cardiac caths annually, far exceeding the minimum 75 annual therapeutic procedures.

Please refer to Attachment B-Need-A.16 for several ETHC physicians' curriculum vitae.

17. Staff and Service Availability: Ideally, therapeutic services should be available on an emergency basis 24 hours per day, 7 days per week through a staff call schedule (24/7 emergency coverage). In addition, all laboratory staff should be available within 30 minutes of the activation of the laboratory. If the applicant will not be able to immediately provide 24/7 emergency coverage, the applicant should present a plan for reaching 24/7 emergency coverage within three years of initiating the service or present a signed transfer agreement with another facility capable of treating transferred patients in a cardiac catheterization laboratory on a 24/7 basis within 90 minutes of the patient's arrival at the originating emergency department.

RESPONSE: North Knoxville Medical Center will ensure that staff are available on an emergency basis 24 hours per day, 7 days per week through the development of a staff call schedule. In addition, staff will be available within 30 minutes of the activation of the laboratory.

As part of Tennova Healthcare, NKMC will utilize the experience and expertise available from PRMC and Turkey Creek to developed policies and procedures to ensure timely and ongoing therapeutic services are available on an emergency basis.

18. Expansion of Services to Include Therapeutic Cardiac Catheterization: An applicant proposing the establishment of therapeutic cardiac catheterization services, who is already an existing provider of diagnostic catheterization services, should demonstrate that its diagnostic cardiac catheterization unit has been utilized for an average minimum of 300 cases per year for the two most recent years as reflected in the data supplied to and/or verified by the Department of Health.

RESPONSE: NKMC will be able to maintain the minimum diagnostic cardiac cath volume requirement as defined by the Department of Health, as demonstrated below and in the prior analyses.

NKMC initiated its diagnostic-only cardiac cath program in June 2015, and since that time has worked to establish its program. Though NKMC has not yet reached the average 300 cases per year diagnostic cath threshold, the ETHC cardiologists who will primarily be performing cardiac caths at NKMC perform well above 300 cases per year, ensuring proficiency in services to be provided at NKMC and supportive of the need for therapeutic cath services as well. Simply stated, the addition of therapeutic cath services to the existing lab along with the expanded presence of the identified six (6) ETHC cardiologists on NKMC's campus will enable NKMC to exceed the minimum 300 diagnostic cases annually.

Moreover, NKMC annually transfers more than 300 ED and inpatients from its facility who would benefit from the proposed expansion of diagnostic cardiac cath services to include therapeutic (interventional) services. Thus, clearly, NKMC's cardiac cath program expects to exceed this diagnostic cath threshold level in the future, as demonstrated by Project Year 1 volume forecasts.

***Please note* that the following cardiac cath standards are not applicable:**

- Specific Standards and Criteria for the Provision of Pediatric Cardiac Catheterization Services.
- Specific Standards and Criteria for the Offering of Mobile Cardiac Catheterization Services.

B. Describe the relationship of this project to the applicant facility's long-range development plans, if any, and how it relates to related previously approved projects of the applicant.

RESPONSE: The expansion of cardiac cath services at NKMC to include therapeutic cardiac cath services is a key component of the hospital's and Tennova Healthcare's long-range development plans. The approval of diagnostic cardiac cath services for North Knoxville (CN1211-056 with a project cost of approximately $4.3 million) was the initial step toward improving the cardiac health of the residents of the 11-county service area. The proposed expansion of that service with the addition of therapeutic cath is the next logical step toward providing timely and appropriate cardiac care to all service area patients in need.

C. Identify the proposed service area and justify the reasonableness of that proposed area. Submit a county level map for the Tennessee portion of the service area using the map on the following page, clearly marked to reflect the service area as it relates to meeting the requirements for CON criteria and standards that may apply to the project. Please include a discussion of the inclusion of counties in the border states, if applicable. Attachment Section B - Need-C.

Please complete the following tables, if applicable:

RESPONSE: The service area for the proposed project consists of an 11-county area accounting for approximately 96% of the inpatient discharges at North Knoxville Medical Center.

Table 8
NKMC Inpatient Origin, 2016

Service Area Counties	Historical Utilization-County Residents	% of total procedures (discharges)
Knox	2,169	51.9%
Anderson	521	12.5%
Campbell	353	8.4%
Union	317	7.6%
Scott	212	5.1%
Jefferson	117	2.8%
Cocke	94	2.2%
Claiborne	90	2.2%
Grainger	56	1.3%
Hamblen	41	1.0%
Sevier	38	0.9%
All Other	171	4.1%
Total	**4,179**	**100%**

Source: NKMC 2016 Joint Annual Report.

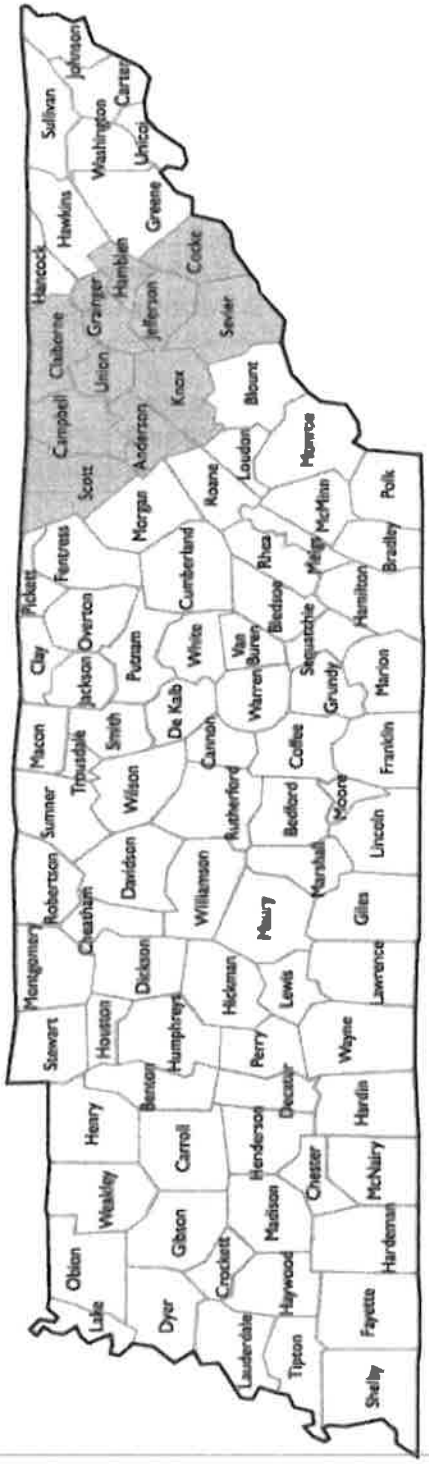
The following table forecasts NKMC's cardiac cath patient origin based on the current (CY2017) 11-county service area cardiac cath outpatient origin at PRMC for the identified ETCH interventional cardiologist who are currently providing diagnostic cardiac caths at NKMC and will increase their presence on NKMC's campus following initiation of the proposed expansion project. The current patient origin distribution for the identified physicians' service area cardiac cath outpatients was applied to Project Year 2 total projected patients to calculated expected allocation of patients by service area county. (*See* Tables 4 and 5 previously presented.)

Table 9
NKMC Cardiac Cath Services
Project Year 2 Patient Origin

Service Area County	Projected Year 2 Cases	Percent of Total
Knox	249	49.1%
Jefferson	57	11.2%
Cocke	42	8.2%
Claiborne	30	5.9%
Union	27	5.4%
Campbell	26	5.2%
Anderson	24	4.7%
Sevier	18	3.5%
Hamblen	17	3.3%
Grainger	11	2.2%
Scott	6	1.3%
Total	**507**	**100%**

Notes:
See Table 4 presented previously for distribution of identified physicians' service area cardiac cath outpatients expected to be redirected from PRMC to NKMC. That % of total patients was applied to Project Year 2 total projected patients to calculated expected allocation of patients by service area county.
Numbers may not sum exactly due to rounding.

TENNESSEE COUNTY MAP



D. 1). a) Describe the demographics of the population to be served by the proposal.

RESPONSE: The 11-county service area currently accounts for approximately 96% of the inpatients receiving care at NKMC. Of the 11 counties, the U.S. Census Bureau defines 8 of them as majority rural with 2 counties (Grainger and Union) as 100% rural, according to the County Rurality Level: 2010 County Rural Lookup Table.

The 11-county area includes nearly one million residents, and is projected to exceed the one million mark by the projected year 2022 timeframe. Knox County represents the greatest concentration of residents with 499,078 residents projected for 2022, approximately 50% of the population of the service area. Only one other county in the service area, Sevier County, has a resident population of over 100,000 by 2022.

The population of the service area is expected to grow by 4.0%, or 38,524 residents from 2018 to 2022. That growth rate approximates the 4.4% growth rate for the entire state of Tennessee during that same timeframe. The target population of adults (age 18+) for the service area is projected to grow 4.4% from 2018 to 2022, an increase of 33,443 residents. That growth rate also closely approximates the state of Tennessee's growth rate for adults (4.8%) during the same time period.

The service area population is generally older than the state average of 38.5, with many of the counties having an average age in the 40s. Only Knox County represents a generally younger population, with an average age of 37.3 years. Additionally, the service area percent of population ages 65+ (18.3% currently, growing to 20.2% in 2022) is higher than the overall state percentage of population ages 65+.

Considering the economic status of the residents of the service area, Knox County is the only county with a median household income greater than the state average of $46,574. In general, the outlying rural counties served by NKMC have higher heart disease death rates, lower per capita income, less education, and higher rates of uninsured than residents in Knox County or the state of Tennessee as a whole.

b) Using current and projected population data from the Department of Health, the most recent enrollee data from the Bureau of TennCare, and demographic information from the US Census Bureau, complete the following table and include data for each county in your proposed service area.

Projected Population Data: http://www.tn.gov/health/article/statistics-population

TennCare Enrollment Data: http://www.tn.gov/tenncare/topic/enrollment-data

Census Bureau Fact Finder: http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml

RESPONSE: For the proposed initiation of therapeutic cardiac cath services at North Knoxville Medical Center, the Current Year is defined as 2018 and the Projected Year is defined as 2022. The Target Population is defined as the adult population (age 18+) of each county.

Demographic Variable/ Geographic Area	Department of Health/Health Statistics							Bureau of the Census				TennCare	
	Total Population-Current Year	Total Population-Projected Year	Total Population-% Change	*Target Population-Current Year	*Target Population-Project Year	*Target Population-% Change	Target Population Projected Year as % of Total	Median Age	Median Household Income	Person Below Poverty Level	Person Below Poverty Level as % of Total	TennCare Enrollees	TennCare Enrollees as % of Total Population
Knox County	477,780	499,078	4.5%	372,202	389,105	4.5%	78.0%	37.3	$50,366	67,508	14.8%	78,248	16.6%
Anderson County	78,387	79,730	1.7%	62,000	63,423	2.3%	79.5%	43.3	$44,241	10,935	14.4%	16,334	20.9%
Campbell County	41,654	42,438	1.9%	33,167	34,145	2.9%	80.5%	43.5	$33,628	9,571	24.1%	12,812	30.8%
Claiborne County	34,263	35,103	2.5%	27,727	28,785	3.8%	82.0%	42.3	$33,428	8,066	25.4%	9,157	26.9%
Cocke County	37,335	38,358	2.7%	29,961	31,006	3.5%	80.8%	44.5	$31,081	8,523	24.2%	11,444	30.8%
Grainger County	24,244	25,157	3.8%	19,320	20,225	4.7%	80.4%	44.2	$37,522	4,614	20.0%	6,020	25.0%
Hamblen County	66,195	67,853	2.5%	50,912	52,270	2.7%	77.0%	40.5	$39,270	11,800	18.5%	16,607	25.2%
Jefferson County	57,073	59,626	4.5%	45,484	47,944	5.4%	80.4%	42.7	$43,673	8,405	15.7%	12,609	22.4%
Scott County	23,058	23,383	1.4%	17,598	18,029	2.4%	77.1%	38.8	$30,897	4,828	22.0%	7,749	33.7%
Sevier County	104,829	112,052	6.9%	83,498	89,766	7.5%	80.1%	42.4	$42,586	14,598	15.1%	21,079	20.5%
Union County	20,124	20,688	2.8%	15,654	16,268	3.9%	78.6%	41.5	$38,540	4,249	22.2%	5,277	26.4%
Service Area Total	964,942	1,003,466	4.0%	757,523	790,966	4.4%	78.8%	N/A	N/A	153,097	16.7%	197,336	20.7%
State of TN Total	6,960,524	7,263,893	4.4%	5,367,165	5,624,053	4.8%	77.4%	38.5	$46,574	1,050,889	15.8%	1,461,291	21.2%

** Target Population is population that project will primarily serve. For example, nursing home, home health agency, hospice agency projects typically primarily serve the Age 65+ population; projects for child and adolescent psychiatric services will serve the Population Ages 0-19. Projected Year is defined in select service-specific criteria and standards. If Projected Year is not defined, default should be four years from current year, e.g., if Current Year is 2016, then default Projected Year is 2020.*

*Target Population is the adult population ages 18+.

Data in the table above has been collected from the following sources:

- Median Age is sourced from The United State Census Bureau's ACS Demographic and Housing Estimates, 2012-2016 American Community Survey 5-Year Estimates.
- Median Household Income, in 2016 dollars, sourced from U.S. Census Bureau, American Community Survey (ACS), 5-Year Estimates.
- Persons Below Poverty Level, % of Total Population, sourced from U.S. Census Bureau 2016 American Community Survey (ACS), 1 Year Estimates. Persons in Poverty calculated utilizing U.S. Census Bureau July 1, 2016 population estimates.
- TennCare Enrollee totals are sourced from the TennCare Enrollment Report for November 2017 and the TennCare Enrollees as a % of Total Population is calculated using the Current Year population from the Tennessee Department of Health (Population Projections, Tennessee Counties and the State, The University of Tennessee Center for Business and Economic Research Population Projection Data Files, Reassembled by the Tennessee Department of Health, Division of Policy, Planning and Assessment, 2017 Revised UTCBER Population Projection Series.

2) Describe the special needs of the service area population, including health disparities, the accessibility to consumers, particularly the elderly, women, racial and ethnic minorities, and low-income groups. Document how the business plans of the facility will take into consideration the special needs of the service area population.

RESPONSE: The demographic data in the table above provides evidence that the residents of the service area have a number of unique needs based on their age and general economic status. In general, as an older population with an overall higher level of poverty, the residents of the service area will require more health care services than a younger, healthier population.

The following table provides additional detail regarding the population ages 65+ in the service area counties.

Table 10
Service Area Population Ages 65+

			Growth 2018-2022		% of Total Pop	
County	**2018**	**2022**	**Number**	**Percent**	**2018**	**2022**
Knox	75,486	86,282	10,796	14.3%	15.8%	17.3%
Anderson	16,533	18,504	1,971	11.9%	21.1%	23.2%
Campbell	9,167	10,414	1,247	13.6%	22.0%	24.5%
Claiborne	7,321	8,412	1,091	14.9%	21.4%	24.0%
Cocke	8,368	9,663	1,295	15.5%	22.4%	25.2%
Grainger	5,340	6,231	891	16.7%	22.0%	24.8%
Hamblen	12,855	14,097	1,242	9.7%	19.4%	20.8%
Jefferson	12,359	14,358	1,999	16.2%	21.7%	24.1%
Scott	4,028	4,531	503	12.5%	17.5%	19.4%
Sevier	21,236	25,259	4,023	18.9%	20.3%	22.5%
Union	3,865	4,571	706	18.3%	19.2%	22.1%
Total	**176,558**	**202,322**	**25,764**	**14.6%**	18.3%	20.2%
Tennessee	1,175,938	1,362,320	186,382	15.8%	16.9%	18.8%

Source: The University of Tennessee Center for Business and Economic Research Population Projection Data Files, Reassembled by the Tennessee Department of Health, Division of Policy, Planning and Assessment. 2017 Revised UTCBER Population Projection Series.

With many of these residents living in rural communities, they are accessing care at NKMC which is generally a significant distance from their home. Having to transport these patient even further from home to another hospital for therapeutic cardiac cath services creates additional stress and challenges for both the patient and family members. The proposed initiation of therapeutic cath services at NKMC takes into account the special needs of the service area population and provides them with the most timely, efficient and effective approach to receiving interventional cardiac care at a hospital that they currently rely on for health care services.

E. Describe the existing and approved but unimplemented services of similar healthcare providers in the service area. Include utilization and/or occupancy trends for each of the most recent three years of data available for this type of project. List each provider and its utilization and/or occupancy individually. Inpatient bed projects must include the following data: Admissions or discharges, patient days, average length of stay, and occupancy. Other projects should use the most appropriate measures, e.g., cases, procedures, visits, admissions, etc. This doesn't apply to projects that are solely relocating a service.

RESPONSE: The 11-county service area aggregate 3-year utilization for all existing and approved providers is 109.5%, which is significantly greater than 70% utilization threshold indicating that need exists in the service area. There are currently no approved but unimplemented cardiac cath services in the service area.

For ease of review, the following table provides the utilization of each provider in the service area for the most recent three years of data available. Please refer to Attachment B-Need-A.8 for the detailed Cardiac Cath Calculations from the Tennessee Department of Health, Division of Policy, Planning and Assessment.

Table 11 - Revised
Service Area Cardiac Cath Lab Utilization

Service Area Hospital	Cardiac Cath Equivalents*			Cath Labs	Utilization
	Diagnostic	Therapeutic	Total		
Methodist Medical Center of Oak Ridge	4,316.0	3,187.0	7,503.0	2	187.6%
Tennova Healthcare - LaFollette Medical Center	3.0	21.0	24.0	0	N/A
Tennova Healthcare - Newport Medical Center	0.0	6.0	6.0	0	N/A
Morristown - Hamblen Healthcare System	1,815.0	1,462.0	3,277.0	2	81.9%
Lakeway Regional Hospital	34.5	6.0	40.5	0	N/A
Tennova Healthcare - Jefferson Memorial Hospital	32.0	127.0	159.0	0	N/A
Fort Sanders Regional Medical Center	3,368.0	2,868.0	6,236.0	4	78.0%
Tennova Healthcare (PRMC)	3,716.0	5,372.0	9,088.0	3	151.5%
University of Tennessee Memorial Hospital	7,098.0	7,342.0	14,440.0	5	144.4%
Parkwest Medical Center	8,226.5	5,810.0	14,036.5	5	140.4%
Tennova Healthcare - Turkey Creek Medical Center**	1,567.0	2,160.0	3,727.0	4	46.6%
Tennova Healthcare - North Knoxville Medical Center	39.0	102.0	141.0	1	7.1%
LeConte Medical Center	437.5	11.0	448.5	1	22.4%
Total (Revised # of Labs)	**30,652.5**	**28,474.0**	**59,126.5**	**27**	**109.5%**
Capacity per Lab (defined by Standards)				2,000	
Total Capacity in Service Area				54,000	
Percent of Existing Services to Capacity				**109.5%**	

Sources & Notes:
Tennessee Department of Health ("TDH"), Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics; Certificate of Need Cardiac Cath Calculations based on 2009 State Health Plan Standards.
*Highest weighted cardiac cath services provided based on TDH Hospital Discharge Data System 2013-2015 recorded procedure level codes (CPT) and service categories.
**Correction to Turkey Creek cath labs from 1 lab to 4 labs, comprised of 1 dedicated EP Lab & 3 multipurpose labs.

F. Provide applicable utilization and/or occupancy statistics for your institution for each of the past three years and the projected annual utilization for each of the two years following completion of the project. Additionally, provide the details regarding the methodology used to project utilization. The methodology **must include** detailed calculations or documentation from referral sources, and identification of all assumptions.

RESPONSE: For details regarding the methodology used to project the following utilization, please refer to Tables 4 – 7 and application pages 24 – 27 presented above.

Table 12
North Knoxville Medical Center: Historical & Projected Cardiac Cath Volumes

	Historical Volume			Projected Volume	
Type of Cath	**CY15**	**CY16**	**CY17**	**Year 1**	**Year 2**
Diagnostic	101	120	112	305	381
Therapeutic	0	0	0	101	126
Total Cases	**101**	**120**	**112**	**406**	**507**
Weighted Cases	101.0	120.0	112.0	507.0	633.0
Lab Utilization	**5.1%**	**6.0%**	**5.6%**	**25.4%**	**31.7%**

SECTION B: ECONOMIC FEASIBILITY

A. Provide the cost of the project by completing the Project Costs Chart on the following page. Justify the cost of the project.

1) All projects should have a project cost of at least $15,000 (the minimum CON Filing Fee). (See Application Instructions for Filing Fee)

RESPONSE: The total cost of the proposed Project is limited and triggers only the minimum CON Filing Fee. The CON Filing Fee is attached to the application and a copy of the submitted check is included in Attachment B-EconFeas-A.1.

2) The cost of any lease (building, land, and/or equipment) should be based on fair market value or the total amount of the lease payments over the initial term of the lease, whichever is greater. Note: This applies to all equipment leases including by procedure or "per click" arrangements. The methodology used to determine the total lease cost for a "per click" arrangement must include, at a minimum, the projected procedures, the "per click" rate and the term of the lease.

RESPONSE: Not applicable. The Project does not encompass the leasing of any buildings, land or equipment. The equipment required for the proposed Project will be purchased and the service will be offered in the existing cardiac cath lab at NKMC.

3) The cost for fixed and moveable equipment includes, but is not necessarily limited to, maintenance agreements covering the expected useful life of the equipment; federal, state, and local taxes and other government assessments; and installation charges, excluding capital expenditures for physical plant renovation or in-wall shielding, which should be included under construction costs or incorporated in a facility lease.

RESPONSE: The cost for the moveable equipment that is part of the proposed Project includes maintenance agreements, taxes and installation charges. See Attachment B-EconFeas-A.3 for a copy of the equipment quote.

4) Complete the Square Footage Chart on page 8 and provide the documentation. Please note the Total Construction Cost reported on line 5 of the Project Cost Chart should equal the Total Construction Cost reported on the Square Footage Chart.

RESPONSE: Not applicable. The proposed Project does not include any renovation of existing space or new construction.

5) For projects that include new construction, modification, and/or renovation—**documentation must be** provided from a licensed architect or construction professional that support the estimated construction costs. Provide a letter that includes the following:

   a) A general description of the project;

   b) An estimate of the cost to construct the project;

   c) A description of the status of the site's suitability for the proposed project; and

   d) Attesting the physical environment will conform to applicable federal standards, manufacturer's specifications and licensing agencies' requirements including the AIA Guidelines for Design and Construction of Hospital and Health Care Facilities in current use by the licensing authority.

RESPONSE: Not applicable.

PROJECT COST CHART

A.	Construction and equipment acquired by purchase:		
	1.	Architectural and Engineering Fees	
	2.	Legal, Administrative (Excluding CON Filing Fee), Consultant Fees	$65,000
	3.	Acquisition of Site	
	4.	Preparation of Site	
	5.	Total Construction Costs	
	6.	Contingency Fund	$30,000
	7.	Fixed Equipment (Not included in Construction Contract)	
	8.	Moveable Equipment (List all equipment over $50,000 as separate attachments)	$117,225
	9.	Other (Specify) _____	
B.	Acquisition by gift, donation, or lease:		
	1.	Facility (inclusive of building and land)	
	2.	Building only	
	3.	Land only	
	4.	Equipment (Specify)_____	
	5.	Other (Specify) _____	
C.	Financing Costs and Fees:		
	1.	Interim Financing	
	2.	Underwriting Costs	
	3.	Reserve for One Year's Debt Service	
	4.	Other (Specify) _____	
D.	Estimated Project Cost (A+B+C)		**$212,225**
E.	CON Filing Fee		$15,000
F.	Total Estimated Project Cost (D+E)	**TOTAL**	**$227,225**

B. Identify the funding sources for this project.

Check the applicable item(s) below and briefly summarize how the project will be financed. ***(Documentation for the type of funding MUST be inserted at the end of the application, in the correct alpha/numeric order and identified as Attachment Section B-Economic Feasibility-B.)***

__ 1) Commercial loan – Letter from lending institution or guarantor stating favorable initial contact, proposed loan amount, expected interest rates, anticipated term of the loan, and any restrictions or conditions;

__ 2) Tax-exempt bonds – Copy of preliminary resolution or a letter from the issuing authority stating favorable initial contact and a conditional agreement from an underwriter or investment banker to proceed with the issuance;

__ 3) General obligation bonds – Copy of resolution from issuing authority or minutes from the appropriate meeting;

__ 4) Grants – Notification of intent form for grant application or notice of grant award;

XX 5) Cash Reserves – Appropriate documentation from Chief Financial Officer of the organization providing the funding for the project and audited financial statements of the organization; and/or

__ 6) Other – Identify and document funding from all other sources.

C. Complete Historical Data Charts on the following two pages—***Do not modify the Charts provided or submit Chart substitutions!***

Historical Data Chart represents revenue and expense information for the last *three (3)* years for which complete data is available. Provide a Chart for the total facility and Chart just for the services being presented in the proposed project, if applicable. **Only complete one chart if it suffices.**

Note that "Management Fees to Affiliates" should include management fees paid by agreement to the parent company, another subsidiary of the parent company, or a third party with common ownership as the applicant entity. "Management Fees to Non-Affiliates" should include any management fees paid by agreement to third party entities not having common ownership with the applicant.

x Total Facility
□ Project Only

HISTORICAL DATA CHART

Give information for the last *three (3)* years for which complete data are available for the facility or agency. The fiscal year begins in **January** (Month).

		Year 2014	Year 2015	Year 2016
A.	Utilization Data (Specify unit of measure, e.g., 1,000 patient days, 500 visits) – **Discharges/Patient Days**	3,675/18,308	4,030/19,624	4,188/20,490
B.	Revenue from Services to Patients			
1.	Inpatient Services	$108,632,000	$136,772,000	$152,509,000
2.	Outpatient Services	239,146,000	290,541,000	336,048,000
3.	Emergency Services	49,636,000	63,414,000	69,323,000
4.	Other Operating Revenue (Specify)_non-operating revenue	3,780,000	3,985,000	1,337,000
	Gross Operating Revenue	**$401,194,000**	**$494,712,000**	**$559,217,000**
C.	Deductions from Gross Operating Revenue			
1.	Contractual Adjustments	$309,470,000	$399,182,000	$457 603 000
2.	Provision for Charity Care	1,251,000	125,000	427,000
3.	Provisions for Bad Debt	10,241,000	11,863,000	11,467,000
	Total Deductions	**$320,962,000**	**$411,170,000**	**$469,497,000**
NET OPERATING REVENUE		**$ 80,232,000**	**$ 83,542,000**	**$ 89,720,000**
D.	Operating Expenses			
1.	Salaries and Wages (includes benefits)			
a.	Direct Patient Care	19,722,000	20,847,000	21,606,000
b.	Non-Patient Care	6,388,000	5,306,000	4,332,000
2.	Physician's Salaries and Wages			
3.	Supplies	9,275,000	11,046,000	12,323,000
4.	Rent			
a.	Paid to Affiliates			
b.	Paid to Non-Affiliates	1,249,000	2,069,000	2,534,000
5.	Management Fees:			
a.	Paid to Affiliates	2,481,000	1,198,000	1,025,000
b.	Paid to Non-Affiliates			
6.	Other Operating Expenses	15,336,000	18,156,000	18,600,000
	Total Operating Expenses	**$ 54,451,000**	**$ 58,622,000**	**$ 60,420,000**
E.	**Earnings Before Interest, Taxes and Depreciation**	**$ 25,781,000**	**$ 24,920,000**	**$ 29,300,000**
F.	Non-Operating Expenses			
1.	Taxes	$ 1,280,000	$ 1,472,000	$ 1,386,000
2.	Depreciation	3,584,000	3,992,000	4,286,000
3.	Interest	667,000	16,000	85,000
4.	Other Non-Operating Expenses	5,701,000	6,052,000	5,929,000
	Total Non-Operating Expenses	**$ 11,232,000**	**$ 11,532,000**	**$ 11,686,000**
NET INCOME (LOSS)		**$ 14,549,000**	**$ 13,388,000**	**$ 17,614,000**

Chart Continues Onto Next Page

NET INCOME (LOSS)	66	**$ 14,549,000**	**$ 13,388,000**	**$ 17,614,000**
G. Other Deductions				
1. Annual Principal Debt Repayment				
2. Annual Capital Expenditure		2,084,000	4,954,000	7,773,000
Total Other Deductions		**$ 2,084,000**	**$ 4,954,000**	**$ 7,773,000**
NET BALANCE		**$ 12,465,000**	**$ 8,434,000**	**$ 9,841,000**
DEPRECIATION		**$ 3,584,000**	**$ 3,992,000**	**$ 4,286,000**
FREE CASH FLOW (Net Balance + Depreciation)		**$ 16,049,000**	**$ 12,426,000**	**$ 14,127,000**

X Total Facility

☐ Project Only

HISTORICAL DATA CHART-OTHER EXPENSES

OTHER EXPENSES CATEGORIES	**Year 2014**	**Year 2015**	**Year 2016**
1. Professional Services Contract	$ 6,551,000	$ 9,756,000	$11,045,000
2. Contract Labor	19,000	71,000	147,000
3. Utilities (Energy)	2,132,000	2,201,000	2,016,000
4. Maintenance	2,354,000	2,754,000	2,767,000
5. Med Spec Fees	1,942,000	1,172,000	982,000
6. All Other (Marketing, Insurance, etc.)	2,338,000	2,202,000	1,643,000
Total Other Expenses	**$15,336,000**	**$18,156,000**	**$18,600,000**

HISTORICAL DATA CHART

□ Total Facility
x Project Only

Give information for the last *three (3)* years for which complete data are available for the facility or agency. The fiscal year begins in **January** (Month). ****NOTE: NKMC's cardiac cath program was initiated in June 2015; thus, CY2016 is the first full year. CY2017 is annualized based on YTD 11 mos. ending November.***

		Year N/A**	Year 2016**	Year 2017**
A.	Utilization Data (Specify unit of measure, e.g., 1,000 patient days, 500 visits) – Cath Cases		120	112
B.	Revenue from Services to Patients			
1.	Inpatient Services		$ 3,606,000	$ 4,114,000
2.	Outpatient Services		1,280,000	1,460,000
3.	Emergency Services			
4.	Other Operating Revenue (Specify)_____			
	Gross Operating Revenue		**$ 4,886,000**	**$ 5,574,000**
C.	Deductions from Gross Operating Revenue			
1.	Contractual Adjustments		$ 4,131,000	$ 4,714,000
2.	Provision for Charity Care			
3.	Provisions for Bad Debt			
	Total Deductions		**$ 4,131,000**	**$ 4,714,000**
NET OPERATING REVENUE			**$ 755,000**	**$ 860,000**
D.	Operating Expenses			
1.	Salaries and Wages (*includes Benefits*)			
c.	Direct Patient Care		303,000	313,000
d.	Non-Patient Care			
2.	Physician's Salaries and Wages			
3.	Supplies		51,000	166,000
4.	Rent			
a.	Paid to Affiliates			
b.	Paid to Non-Affiliates		239,000	235,000
5.	Management Fees:			
c.	Paid to Affiliates			
d.	Paid to Non-Affiliates			
6.	Other Operating Expenses		77,000	101,000
	Total Operating Expenses		**$ 670,000**	**815,000**
E.	**Earnings Before Interest, Taxes and Depreciation**		**$ 85,000**	**$ 45,000**
F.	Non-Operating Expenses			
1.	Taxes		5,000	15,000
2.	Depreciation		400,000	400,000
3.	Interest			
4.	Other Non-Operating Expenses			
	Total Non-Operating Expenses		**$ 405,000**	**$ 415,000**
NET INCOME (LOSS)			**$ (320,000)**	**$ (370,000)**

Chart Continues Onto Next Page

NET INCOME (LOSS)		**$ (320,000)**	**$ (370,000)**
G.	Other Deductions		
1.	Annual Principal Debt Repayment	$	$
2.	Annual Capital Expenditure		
	Total Other Deductions	$	$
	NET BALANCE	**$ (320,000)**	**$ (370,000)**
	DEPRECIATION	**$ 400,000**	**$ 400,000**
	FREE CASH FLOW (Net Balance + Depreciation)	**$ 80,000**	**$ 30,000**

☐ Total Facility
X Project Only

HISTORICAL DATA CHART-OTHER EXPENSES

OTHER EXPENSES CATEGORIES	**Year N/A**	**Year 2016**	**Year 2017**
1. Repair & Maintenance		46,000	72,000
2. Outside Services		27,000	24,000
3. Other		4,000	5,000
Total Other Expenses		**$ 77,000**	**$ 101,000**

D. Complete Projected Data Charts on the following two pages – ***Do not modify the Charts provided or submit Chart substitutions!***

The Projected Data Chart requests information for the two years following the completion of the proposed services that apply to the project. Please complete two Projected Data Charts. One Projected Data Chart should reflect revenue and expense projections for the ***Proposal Only*** (*i.e.*, if the application is for additional beds, include anticipated revenue from the proposed beds only, not from all beds in the facility). The second Chart should reflect information for the total facility. **Only complete one chart if it suffices.**

Note that "Management Fees to Affiliates" should include management fees paid by agreement to the parent company, another subsidiary of the parent company, or a third party with common ownership as the applicant entity. "Management Fees to Non-Affiliates" should include any management fees paid by agreement to third party entities not having common ownership with the applicant.

X Total Facility
□ Project Only

PROJECTED DATA CHART

Give information for the two (2) years following the completion of this proposal. The fiscal year begins in **January** (Month).

		Year 1	Year 2
A.	Utilization Data (**Discharges/Patient Days**)	4,523/22,128	4,700/22,996
B.	Revenue from Services to Patients		
1.	Inpatient Services	$164,702,000	$171,159,000
2.	Outpatient Services	362,914,000	377,143,000
3.	Emergency Services	74,866,000	77,801,000
4.	Other Operating Revenue (Specify)_____	1,444,000	1,501,000
	Gross Operating Revenue	**$603,926,000**	**$627,604,000**
C	Deductions from Gross Operating Revenue		
1.	Contractual Adjustments	$494,188,000	$513,564,000
2.	Provision for Charity Care	461,000	479,000
3.	Provisions for Bad Debt	12,384,000	12,869,000
	Total Deductions	**$507,033,000**	**$526,912,000**
NET OPERATING REVENUE		**$ 96,893,000**	**$100,692,000**
D.	Operating Expenses		
1.	Salaries and Wages *(includes Benefits)*		
a.	Direct Patient Care	23,333,000	24,248,000
b.	Non-Patient Care	4,678,000	4,861,000
2.	Physician's Salaries and Wages		
3.	Supplies	13,308,000	13,830,000
4.	Rent		
a.	Paid to Affiliates		
b.	Paid to Non-Affiliates	2,737,000	2,844,000
5.	Management Fees:		
a.	Paid to Affiliates		
b.	Paid to Non-Affiliates	1,107,000	1,151,000
6.	Other Operating Expenses	20,195,000	21,043,000
	Total Operating Expenses	**$ 65,358,000**	**$ 67,977,000**
E.	**Earnings Before Interest, Taxes and Depreciation**	**$ 31,535,000**	**$ 32,715,000**
F.	Non-Operating Expenses		
1.	Taxes	$ 1,414,000	$ 1,428,000
2.	Depreciation	4,686,000	4,886,000
3.	Interest	86,000	87,000
4.	Other Non-Operating Expenses	6,403,000	6,655,000
	Total Non-Operating Expenses	**$ 12,589,000**	**$ 13,056,000**
NET INCOME (LOSS)		**$ 18,946,000**	**$ 19,659,000**

Chart Continues Onto Next Page

NET INCOME (LOSS)		**$ 18,946,000**	**$ 19,659,000**
G. Other Deductions			
1. Estimated Annual Principal Debt Repayment		$	$
2. Annual Capital Expenditure		4,000,000	4,000,000
	Total Other Deductions	$ 4,000,000	$ 4,000,000
	NET BALANCE	**$ 14,946,000**	**$ 15,659,000**
	DEPRECIATION	$ 4,686,000	$ 4,886,000
	FREE CASH FLOW (Net Balance + Depreciation)	$ 19,632,000	$ 20,545,000

X Total Facility

☐ Project Only

PROJECTED DATA CHART-OTHER EXPENSES

OTHER EXPENSES CATEGORIES	**Year 1**	**Year 2**
1. Professional Services Contract	$ 11,928,000	$ 12,396,000
2, Contract Labor	159,000	165,000
3, Utilities	2,223,000	2,334,000
4, Maintenance	3,050,000	3,203,000
5, Med Spec Fees	1,061,000	1,102,000
6. All Other	1,774,000	1,843,000
Total Other Expenses	**$ 20,195,000**	**$ 21,043,000**

PROJECTED DATA CHART

□ Total Facility
X Project Only

Give information for the two (2) years following the completion of this proposal. The fiscal year begins in **January** (Month).

		Year 1	Year 2
A.	Utilization Data (Procedures – Cardiac Catheterizations)	406	507
B.	Revenue from Services to Patients		
1.	Inpatient Services	$ 7,516,100	$ 9,655,200
2.	Outpatient Services	10,660,200	13,716,300
3.	Emergency Services		
4.	Other Operating Revenue (Specify)_____		
	Gross Operating Revenue	**$ 18,176,300**	**$ 23,371,500**
C	Deductions from Gross Operating Revenue		
1.	Contractual Adjustments	$ 14,541,000	$ 18,697,200
2.	Provision for Charity Care	90,900	116,900
3.	Provisions for Bad Debt	454,400	584,300
	Total Deductions	$ 15,086,300	$ 19,398,400
NET OPERATING REVENUE		**$ 3,090,000**	**$ 3,973,100**
D.	Operating Expenses		
1.	Salaries and Wages *(includes Benefits)*		
a.	Direct Patient Care	402,600	414,600
b.	Non-Patient Care		
2.	Physician's Salaries and Wages		
3.	Supplies	1,056,400	1,358,400
4.	Rent		
a.	Paid to Affiliates		
b.	Paid to Non-Affiliates	250,000	250,000
5.	Management Fees:		
a.	Paid to Affiliates		
b.	Paid to Non-Affiliates		
6.	Other Operating Expenses	124,300	124,500
	Total Operating Expenses	$ 1,833,300	$ 2,147,500
E.	**Earnings Before Interest, Taxes and Depreciation**	**$ 1,256,700**	**$ 1,825,600**
F.	Non-Operating Expenses		
1.	Taxes	$ 43,000	$ 53,200
2.	Depreciation	434,400	434,400
3.	Interest		
4.	Other Non-Operating Expenses		
	Total Non-Operating Expenses	$ 477,400	$ 487,600
NET INCOME (LOSS)		$ 779,300	$ 1,338,000

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NET INCOME (LOSS)	**$ 779,300**	**$ 1,338,000**
G. Other Deductions		
1. Estimated Annual Principal Debt Repayment	$	$
2. Annual Capital Expenditure		
Total Other Deductions	$	$
NET BALANCE	**$ 779,800**	**$ 1,338,000**
DEPRECIATION	$ 434,400	$ 434,400
FREE CASH FLOW (Net Balance + Depreciation)	**$ 1,214,200**	**$ 1,772,400**

☐ Total Facility

X Project Only

PROJECTED DATA CHART-OTHER EXPENSES

OTHER EXPENSES CATEGORIES	Year 1	Year 2
1. Repair and Maintenance	$ 84,800	$ 84,800
2. Outside Services	30,000	30,000
4. Contingency	9,500	9,700
Total Other Expenses	$ 124,300	$ 124,500

E. 1) Please identify the project's average gross charge, average deduction from operating revenue, and average net charge using information from the Projected Data Chart for Year 1 and Year 2 of the proposed project. Please complete the following table.

RESPONSE: NKMC currently does not provide therapeutic cardiac catheterization services; thus, historical charge data for this service does not exist. Proposed charges for Year One and Year Two are provided in the following chart.

	Previous Year	Current Year	Year One	Year Two	% Change (Current Year to Year 2)
Gross Charge *(Gross Operating Revenue/Utilization Data)*	N/A	N/A	$44,800	$46,100	3%
Deduction from Revenue *(Total Deductions/Utilization Data)*	N/A	N/A	$37,200	$38,300	3%
Average Net Charge *(Net Operating Revenue/Utilization Data)*	N/A	N/A	$7,600	$7,800	3%

2) Provide the proposed charges for the project and discuss any adjustment to current charges that will result from the implementation of the proposal. Additionally, describe the anticipated revenue from the project and the impact on existing patient charges.

RESPONSE: Proposed charges are commensurate with charges for therapeutic cardiac cath services at Tennova's other hospitals in the Knoxville area, PRMC and Turkey Creek. No adjustments to charges will be made for current diagnostic cardiac cath services (or any other hospital services) upon the initiation of the proposed therapeutic cardiac cath service. The addition of the proposed interventional cardiac cath service will positively impact hospital-wide revenue.

3) Compare the proposed charges to those of similar facilities in the service area/adjoining service areas, or to proposed charges of projects recently approved by the Health Services and Development Agency. If applicable, compare the proposed charges of the project to the current Medicare allowable fee schedule by common procedure terminology (CPT) code(s).

RESPONSE: Statewide, Tennova's Knoxville hospitals that provide therapeutic cardiac cath services compare favorably to other hospital therapeutic cardiac cath providers across the state. When comparing median charges for DRGs 191 and 192 (using the most recent data Tennessee Hospital Discharge Data available), both PRMC's and Turkey Creek's charges are reasonable when compared to the average charge for all hospitals in the state with inpatients with these two diagnoses.

F. 1) Discuss how projected utilization rates will be sufficient to support the financial performance. Indicate when the project's financial breakeven is expected and demonstrate the availability of sufficient cash flow until financial viability is achieved. Provide copies of the balance sheet and income statement from the most recent reporting period of the institution and the most recent audited financial statements with accompanying notes, if applicable. For all projects, provide financial information for the corporation, partnership, or principal parties that will be a source of funding for the project. Copies must be inserted at the end of the application, in the correct alpha-numeric order and labeled as **Attachment Section B-Economic Feasibility-F1**. **NOTE: Publicly held entities only need to reference their SEC filings.**

RESPONSE: NKMC's reasonable volume projections support the financial performance of the cardiac cath program, which is expected to have a positive bottom line in Project Year 1, resulting from additional procedure volume covering the current fixed costs plus all incremental costs.

The applicant has cash available to implement the proposed project and support the Year 1 operations until financial breakeven, if needed. Please refer to Attachment B-EconFeas-B for project funding letters from CHS' Vice President and Treasurer and NKMC's CFO.

As part of Tennova Healthcare, which has as its ultimate parent Community Health Systems, Inc. ("CHS"), the Applicant entity does not have audited financial statements. The most recent SEC filing of CHS (2016 10-K and the 2016 Annual Report) reflects the ability of CHS to fund the project, if needed. As reported in the 2016 Annual Report to Shareholders, CHS' 2016 adjusted EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization) was over $2.2 billion and earnings per share from continuing operations excluding adjustments was $0.46. CHS' adjusted net cash provided by operating activities was over $1.15 billion in 2016, which was up 11% compared to the organization's 2015 performance.

2) Net Operating Margin Ratio – Demonstrates how much revenue is left over after all the variable or operating costs have been paid. The formula for this ratio is: (Earnings before interest, Taxes, and Depreciation/Net Operating Revenue).

Utilizing information from the Historical and Projected Data Charts please report the net operating margin ratio trends in the following table:

Year	2nd Year previous to Current Year	1st Year previous to Current Year	Current Year (2016)	Projected Year 1	Projected Year 2
Net Operating Margin Ratio **(NKMC)**	32.1%	29.8%	32.7%	32.6%	32.5%

3) Capitalization Ratio (Long-term debt to capitalization) – Measures the proportion of debt financing in a business's permanent (Long-term) financing mix. This ratio best measures a business's true capital structure because it is not affected by short-term financing decisions. The formula for this ratio is: (Long-term debt/(Long-term debt+Total Equity (Net assets)) x 100).

For the entity (applicant and/or parent company) that is funding the proposed project please provide the capitalization ratio using the most recent year available from the funding entity's audited balance sheet, if applicable. The Capitalization Ratios are not expected from outside the company lenders that provide funding.

RESPONSE: CHS' FY16 capitalization ratio is 89.5, demonstrated by the financial statements provided in Attachment B-EconFeas-F1.

G. Discuss the project's participation in state and federal revenue programs including a description of the extent to which Medicare, TennCare/Medicaid and medically indigent patients will be served by the project. Additionally, report the estimated gross operating revenue dollar amount and percentage of projected gross operating revenue anticipated by payor classification for the first year of the project by completing the table below.

Applicant's Projected Payor Mix, Year 1

Payor Source	Projected Gross Operating Revenue	As a % of total
Medicare/Medicare Managed Care	$ 4,544,100	25.0%
TennCare/Medicaid	$ 1,817,600	10.0%
Commercial/Other Managed Care	$ 9,906,100	54.5%
Self-Pay	$ 1,817,600	10.0%
Charity Care	$ 90,900	0.5%
Total	$18,176,300	100.0%

H. Provide the projected staffing for the project in Year 1 and compare to the current staffing for the most recent 12-month period, as appropriate. This can be reported using full-time equivalent (FTEs) positions for these positions. Additionally, please identify projected salary amounts by position classifications and compare the clinical staff salaries to prevailing wage patterns in the proposed service area as published by the Department of Labor & Workforce Development and/or other documented sources.

Position Classification	Existing FTEs (enter year)	Projected FTEs Year 1	Average Wage (Contractual Rate)	Area Wide/Statewide Average Wage*
a) Direct Patient Care Positions	CY2017			
RNs	2.0	2.0	$30/hour	$28/hour
Techs	2.0	4.0	$23/hour	$22/hour
Total Direct Patient Care Positions	**4.0**	**6.0**		
b) Non-Patient Care Positions				
Position 1				
Position 2				
Total Non-Patient Care Positions				
Total Employees *(A+B)*				
c) Contractual Staff				
Total Staff *(a+b+c)*	**4.0**	**6.0**		

*Source: TN Dept. of Labor and Workforce Development, 2016 data.

I. Describe all alternatives to this project which were considered and discuss the advantages and disadvantages of each alternative including but not limited to:

1) Discuss the availability of less costly, more effective and/or more efficient alternative methods of providing the benefits intended by the proposal. If development of such alternatives is not practicable, justify why not, including reasons as to why they were rejected.

RESPONSE: There are simply no viable alternatives to the proposed modernization and expansion of NKMC's existing cardiac cath services.

The alternative to this proposal is for NKMC to continue transferring patients requiring therapeutic cardiac cath services to other hospitals, which unnecessarily delays care while increasing the cost of care and risk to the patient.

2) Document that consideration has been given to alternatives to new construction, e.g., modernization or sharing arrangements.

RESPONSE: The proposed project will modernize existing cardiac cath services in an existing lab at NKMC with no need for renovation or new construction; thus, is an economically feasible alternative to ensure service area patients receive needed services in a timely manner.

SECTION B: CONTRIBUTION TO THE ORDERLY DEVELOPMENT OF HEALTH CARE

A. List all existing health care providers (i.e., hospitals, nursing homes, home care organizations, etc.), managed care organizations, alliances, and/or networks with which the applicant currently has or plans to have contractual and/or working relationships, that may directly or indirectly apply to the project, such as, transfer agreements, contractual agreements for health services.

RESPONSE: Tennova Healthcare has contractual and working relationships with a number of providers that represent a variety of segments of the healthcare industry, including general acute care hospitals, tertiary care medical centers, nursing homes, and home care organizations. NKMC has plans contractual and/or working relationships with the following providers:

Asbury Place Maryville HealthCare
Blount Memorial Hospital
Brookdale Kingston
Claiborne Medical Center
East Tennessee Children's Hospital
Jellico Community Hospital
Laughlin Memorial Hospital
Morgan County Medical Center
NHC Healthcare Fort Sanders
Parkwest Surgery Center
Ridgeview Terrace of LifeCare
Select Specialty Hospital – North Knoxville Inc.
Shannondale
Starr Regional Medical Center
UT Medical Center – Knoxville
West Hills Health and Rehab
Baptist Health Care Center
Briarcliff Health Care Center
Claiborne Health and Rehabilitation Center
Concordia Care – Northhaven
Holston Health and Rehabilitation Center
Lafollette Medical Center
LifeCare Center
NHC Farragut
NHC Healthcare Knoxville
Peninsula Behavioral Health
Rural Metro Ambulance Services
Serene Manor Medical Center
Signature HealthCARE of Rockwood
Takoma Regional Hospital
Vanderbilt University
Westmoreland Health & Rehab Center

B. Describe the effects of competition and/or duplication of the proposal on the health care system, including the impact to consumers and existing providers in the service area. Discuss any instances of competition and/or duplication arising from your proposal including a description of the effect the proposal will have on the utilization rates of existing providers in the service area of the project.

1) Positive Effects

RESPONSE: NKMC's proposed expansion of its existing cardiac cath services to include therapeutic cath will positively impact service area residents (consumers) by ensuring that interventional, life-saving health care services are available when and where needed. Currently, NKMC transfers approximately 400 patients annually from its ED and inpatient units who would benefit from the proposed modernization and upgrade of equipment in the existing cardiac cath lab to include therapeutic services. These patients, who are currently choosing to receive health care services at North Knoxville, must be transported to another facility because NKMC is not licensed to offer therapeutic cath services. Thus, not only would the provision of services at NKMC mean shorter time from onset of symptoms to restoration of blood flow for cardiac patients (which is a critical quality of care issue), but it would also mean that patients choosing to receive care at NKMC would be able to do so.

Additionally, North Knoxville's proposed therapeutic cath service will enhance access to care for all service area patients, including those who reside in outlying service area counties and must now travel into the congested downtown Knoxville area for therapeutic cath services. Moreover, once on the NKMC hospital campus, access and wayfinding to the cardiac cath services is much easier and more manageable for patients, including the elderly, than on the much larger and more congested campus of PRMC.

The provision of therapeutic cardiac cath services without on-site surgical backup is a safe and accepted treatment for patients in need when performed by experienced physicians. Low-risk patients with the need for a therapeutic cath during the same session in which the diagnostic cardiac cath is performed are optimally served by having the interventional procedure during the same session, rather than being forced to undergo a second cath procedure at a different location, and oftentimes at a later date (when not an emergent situation).

Moreover, NKMC has on its staff and campus highly-qualified and trained interventional cardiologists who are capable of performing therapeutic procedures, and who already serve a significant number of therapeutic cath patients from the defined 11-county service area at Tennova's PRMC campus. NKMC has available capacity in its existing cardiac cath lab (currently utilized at less than 10%) while PRMC's cath services are highly utilized (151.5% for most recent 3-year period). Thus, the provision of therapeutic cath services at NKMC will significant reduce the need for patients to be transported from NKMC to PRMC for therapeutic cath services, enhancing quality of care for patients and improving operational efficiencies for both NKMC and PRMC cardiac cath services. Notably, NKMC's project can be implemented with minimal costs and no construction or renovation.

2) Negative Effects

RESPONSE: The initiation of therapeutic cardiac cath services at North Knoxville will not adversely impact any existing provider or service area consumers.

C. 1) Discuss the availability of and accessibility to human resources required by the proposal, including clinical leadership and adequate professional staff, as per the State of Tennessee licensing requirements and/or requirements of accrediting agencies, such as the Joint Commission and Commission on Accreditation of Rehabilitation Facilities.

RESPONSE: As an initial matter, it should be noted that minimal additional staff is needed to implement the proposed modernization and expansion of existing diagnostic cath services to include therapeutic cath services. NKMC will work with its sister hospitals (PRMC and Turkey Creek) for existing staff members to receive the necessary training to care for therapeutic patients, including moving some clinical staff who are currently performing interventional cardiac caths from PRMC to NKMC to supplement staffing and provide training for current NKMC staff.

Specific to physicians who will provide the service, NKMC already has on its staff employed interventional cardiologists with a part-time presence in the ETHC office on NKMC's hospital campus, who will begin providing interventional services on NKMC's campus immediately upon approval of the proposed expansion project.

When new staffing is needed, NKMC will utilize its proven methods of staff recruitment and retention to ensure adequate staff for the cardiac cath service is in place. For example, Tennova has a robust and long-standing recruiting process with a demonstrated track record of hiring staff, including use of healthcare program affiliations and national online recruitment, among other means. As a statewide healthcare network, Tennova also has the ability to recruit across a wide geographic region and offer relocation opportunities for staff interested in moving to the Knoxville area.

Tennova Healthcare's retention tools include a comprehensive array of benefits that include medical, dental and vision insurance coverage, life and disability insurance benefits, tuition reimbursement and a 401K retirement plan. As a provider with multiple hospitals in the Knoxville area, Tennova also has the ability to provide career growth opportunities that might not exist at a smaller, single-site institution. Thus, as demonstrated, staffing recruitment and retention for the proposed service expansion will not be a problem for NKMC.

2) Verify that the applicant has reviewed and understands all licensing and/or certification as required by the State of Tennessee and/or accrediting agencies such as the Joint Commission for medical/clinical staff. These include, without limitation, regulations concerning clinical leadership, physician supervision, quality assurance policies and programs, utilization review policies and programs, record keeping, clinical staffing requirements, and staff education.

RESPONSE: The applicant has reviewed and understands all licensing and/or certification as required by the State of Tennessee and/or accrediting agencies such as the Joint Commission for medical/clinical staff.

3) Discuss the applicant's participation in the training of students in the areas of medicine, nursing, social work, etc. (e.g., internships, residencies, etc.).

RESPONSE: Tennova Healthcare, including the applicant entity NKMC, has educational affiliations with numerous schools and organizations, including:

- AT Still University (Arizona School of Health Sciences)
- Carson Newman College
- Creighton University
- East Tennessee State University

- Grace Academy
- Independence University
- Iowa College Acquisition Co (Kaplan University)
- Knox County Schools
- Lincoln Memorial University
- Pellissippi State Community College
- Roane State Community College
- South College
- Tennessee Technical College at Jacksboro
- Tennessee Technical College at Knoxville
- Tennessee Technical College of Oneida
- Union County Schools
- University of New England
- University of Miami
- University of North Carolina at Chapel Hill
- University of Tennessee, Knoxville
- University of Tennessee, Memphis
- Vanderbilt University
- Walden University
- Walters State University

D. Identify the type of licensure and certification requirements applicable and verify the applicant has reviewed and understands them. Discuss any additional requirements, if applicable. Provide the name of the entity from which the applicant has received or will receive licensure, certification, and/or accreditation.

Licensure: **Tennessee Department of Health, Board for Licensing Health Care Facilities**

Certification Type (e.g. Medicare SNF, Medicare LTAC, etc.):

Accreditation (i.e., Joint Commission, CARF, etc.): **Joint Commission**

1) If an existing institution, describe the current standing with any licensing, certifying, or accrediting agency. Provide a copy of the current license of the facility and accreditation designation.

RESPONSE: NKMC is in good standing with all licensing, certifying and accrediting agencies. A copy of the hospital license, Joint Commission accreditation, and relevant portions of Tennova Healthcare's CMS Letter of Compliance are included in Attachment B-Need-A.2.

2) For existing providers, please provide a copy of the most recent statement of deficiencies/plan of correction and document that all deficiencies/findings have been corrected by providing a letter from the appropriate agency.

RESPONSE: North Knoxville Medical Center is in good standing with all licensing agencies. Please refer to Attachment B-Need-A.2 for the hospital license, Joint Commission accreditation, and relevant portions of Tennova Healthcare's CMS Letter of Compliance.

3) Document and explain inspections within the last three survey cycles which have resulted in any of the following state, federal, or accrediting body actions: suspension of admissions, civil monetary penalties, notice of 23-day or 90-day termination proceedings from Medicare/Medicaid/TennCare, revocation/denial of accreditation, or other similar actions.

   a) Discuss what measures the applicant has or will put in place to avoid similar findings in the future.

RESPONSE: Not applicable. Tennova Healthcare is in good standing with all licensing, certifying, and accrediting agencies.

E. Respond to all of the following and for such occurrences, identify, explain and provide documentation:

1) Has any of the following:

   a) Any person(s) or entity with more than 5% ownership (direct or indirect) in the applicant (to include any entity in the chain of ownership for applicant);

   b) Any entity in which any person(s) or entity with more than 5% ownership (direct or indirect) in the applicant (to include any entity in the chain of ownership for applicant) has an ownership interest of more than 5%; and/or

   c) Any physician or other provider of health care, or administrator employed by any entity in which any person(s) or entity with more than 5% ownership in the applicant (to include any entity in the chain of ownership for applicant) has an ownership interest of more than 5%.

2) Been subjected to any of the following:

   a) Final Order or Judgment in a state licensure action;

   b) Criminal fines in cases involving a Federal or State health care offense;

   c) Civil monetary penalties in cases involving a Federal or State health care offense;

   d) Administrative monetary penalties in cases involving a Federal or State health care offense;

   e) Agreement to pay civil or administrative monetary penalties to the federal government or any state in cases involving claims related to the provision of health care items and services; and/or

   f) Suspension or termination of participation in Medicare or Medicaid/TennCare programs.

   g) Is presently subject of/to an investigation, regulatory action, or party in any civil or criminal action of which you are aware.

   h) Is presently subject to a corporate integrity agreement.

RESPONSE: Metro Knoxville HMA, LLC and its immediate parent, Knoxville HMA Holdings, LLC, are subject to Community Health Systems, Inc.'s – their ultimate parent company – Corporate Integrity Agreement ("CIA"), dated July 28, 2014, with the Office of Inspector General ("OIG"). Metro Knoxville HMA, LLC is not aware of any of the other identified actions against its immediate 100%-owner parent, Knoxville HMA Holdings, LLC.

F. Outstanding Projects: 82

1) Complete the following chart by entering information for each applicable outstanding CON by applicant or share common ownership; and

Outstanding Projects					
CON Number	Project Name	Date Approved	*Annual Progress Report(s) Due Date	*Annual Progress Report(s) Date Filed	Expiration Date
CN1206-027AMM	NKMC PET/CT Unit	04/26/17	04/26/18	N/A	04/26/20
CN1408-033A	PRMC Partial Replacement Hospital	11/19/14	11/19/17 (most recent)	10/31/17 (most recent)	01/01/19
CN1408-034A	PRMC Relocation of 25-bed Nursing Home	11/19/14	11/19/17 (most recent)	10/31/17 (most recent)	01/01/19

* Annual Progress Reports – HSDA Rules require that an Annual Progress Report (APR) be submitted each year. The APR is due annually until the Final Project Report (FPR) is submitted (FPR is due within 90 ninety days of the completion and/or implementation of the project). Brief progress status updates are requested as needed. The project remains outstanding until the FPR is received.

2) Provide a brief description of the current progress, and status of each applicable outstanding CON.

CN1206-027AMM: the project is underway, with completion expected by March 1, 2018.

CN1408-033A: Progress on the partial replacement hospital at Middlebrook Pike is continuing. There have been several delays in beginning site work, but items completed to date include schematic design, relocation of natural gas and waste water lines by the Knoxville Utilities Board, approval by the US Army Corps of Engineers for wetlands mitigation, and an archaeological survey and historic resources reconnaissance completed by S&ME, Inc. for the State Historic Preservation Office ("SHPO").

CN1408-034A: Progress on the partial replacement hospital at Middlebrook Pike is continuing. There have been several delays in beginning site work, but items completed to date include schematic design, relocation of natural gas and waste water lines by the Knoxville Utilities Board, approval by the US Army Corps of Engineers for wetlands mitigation, and an archaeological survey and historic resources reconnaissance completed by S&ME, Inc. for the State Historic Preservation Office ("SHPO").

G. Equipment Registry – For the applicant and all entities in common ownership with the applicant.

1) Do you own, lease, operate, and/or contract with a mobile vendor for a Computed Tomography scanner (CT), Linear Accelerator, Magnetic Resonance Imaging (MRI), and/or Positron Emission Tomographer (PET)? Yes

2) If yes, have you submitted their registration to HSDA? If you have, what was the date of submission? Registration complete for all equipment as acquired; most recent 10.26.16.

3) If yes, have you submitted your utilization to Health Services and Development Agency? If you have, what was the date of submission? 2016 JAR completed with relevant volume data.

SECTION B: QUALITY MEASURES

Please verify that the applicant will report annually using forms prescribed by the Agency concerning continued need and appropriate quality measures as determined by the Agency pertaining to the certificate of need, if approved.

RESPONSE: North Knoxville Medical Center commits to reporting annually utilizing forms prescribed by the Agency concerning continued need and appropriate quality measures as determined by the Agency pertaining to the certificate of need, if approved. NKMC currently provides the Agency required data in a timely manner, such as the Joint Annual Report.

SECTION C: STATE HEALTH PLAN QUESTIONS

T.C.A. §68-11-1625 requires the Tennessee Department of Health's Division of Health Planning to develop and annually update the State Health Plan (found at http://www.tn.gov/health/topic/health-planning). The State Health Plan guides the State in the development of health care programs and policies and in the allocation of health care resources in the State, including the Certificate of Need program. The 5 Principles for Achieving Better Health are from the State Health Plan's framework and inform the Certificate of Need program and its standards and criteria.

Discuss how the proposed project will relate to the 5 Principles for Achieving Better Health found in the State Health Plan.

A. The purpose of the State Health Plan is to improve the health of the people of Tennessee.

RESPONSE: The proposed initiation of therapeutic cardiac cath services at North Knoxville Medical Center will improve the health of the people of Tennessee by providing them with access to a standard of care (therapeutic cardiac cath services without on-site cardiac surgery) at a hospital that they currently rely on for their health care needs. As cardiac disease is a leading cause of premature death in the state of Tennessee as well as the Knoxville area, the opportunity to enhance access to interventional care is a positive step toward improving the health of the residents of Tennessee.

B. People in Tennessee should have access to health care and the conditions to achieve optimal health.

RESPONSE: The proposed Project will enhance access to care, both geographically and economically. Geographically, residents of the 11-county service area will have access to therapeutic cardiac cath services at NKMC, which for many is the closest hospital available when one is experiencing a cardiac episode. Economically, NKMC provides care to all patients, regardless of ability to pay. NKMC provides care to the economically disadvantaged through full participation in the TennCare program, as well as the elderly, many with fixed incomes, through full participation in the Medicare program. NKMC also maintains a broad charity care policy and provides significant discounts to uninsured patients which account for millions of dollars in discounted care annually.

C. Health resources in Tennessee, including health care, should be developed to address the health of people in Tennessee while encouraging economic efficiencies.

RESPONSE: The proposed establishment of therapeutic cardiac cath services at NKMC addresses an important health issue for the residents of the state of Tennessee. Heart disease is the second leading cause of premature death in the state of Tennessee. According to the 2016 analysis of Years of Potential Life Lost (YPLL) Prior to Age 75 Years published by the Tennessee Department of Health, heart disease is second only to cancer as the leading cause of premature death in Tennessee, accounting for over 100,000 years of life lost in 2016 and over 7,000 premature deaths.

In Knox County alone, heart disease is the third leading cause of premature death, accounting for over 6,000 years of life lost and over 400 premature deaths. The proposed Project is focused on reducing time to intervention for patients experiencing a cardiac event, thereby reducing the opportunity for lost heart muscle and a lower quality of life as well. Enhancing accessing to interventional cardiac care will address this important health issue.

The proposed Project also encourages economic efficiencies. Therapeutic cardiac cath services can be offered to service area residents without the addition of significant costs associated with renovations of the existing hospital or new construction. A minimal investment will allow for a very important service to be available to residents of the service area. The residents of the service area are already choosing North Knoxville for their care as exhibited in the patient origin for inpatients at the hospital.

D. People in Tennessee should have confidence that the quality of health care is continually monitored and standards are adhered to by providers.

RESPONSE: NKMC will instill a level of confidence in service area residents that they are receiving care from a high-quality health care provider. Tennova Healthcare, which includes North Knoxville Medical Center, has nearly four decades of experience providing cardiac care to the residents of East Tennessee through the Tennova Heart Institute.

Tennova's comprehensive and experienced cardiac team of nurses, physicians and additional clinicians and support staff have provided advanced cardiac care to thousands of patients. Tennova's advanced approaches to diagnosing, treating and rehabilitating patients with cardiac diagnosis, its participation in national and global clinical trials, as well as the certifications and accreditations of its hospitals provides the confidence to the residents of Tennessee, specifically those within the 11-county service area, that an experienced network of cardiac providers is available when they or a family member needs that care.

North Knoxville Medical Center, as well as all of Tennova Healthcare, regularly monitor and measure clinical processes and outcomes in order to provide the best care possible to its patients. NKMC will continue to focus on quality and improve the care provided by adhering to industry standards of care established by leading organizations in advanced cardiac care such as the American College of Cardiology, the American Heart Association and the Society for Cardiac Angiography and Interventions.

E. The state should support the development, recruitment, and retention of a sufficient and quality health workforce.

RESPONSE: The proposed Project supports workforce development by allowing qualified health care personnel to remain within the state to develop or maintain their skills and abilities by providing an additional site for therapeutic cardiac cath services. Additionally, Tennova Healthcare and the applicant entity have educational affiliations with numerous schools and organizations, which supports the development, recruitment, and retention of a sufficient and quality health workforce for the service are and the state as a whole.

PROOF OF PUBLICATION

Attach the full page of the newspaper in which the notice of intent appeared with the mast and dateline intact or submit a publication affidavit from the newspaper that includes a copy of the publication as proof of the publication of the letter of intent.

See Proof of Publication included in the attachments.*

NOTIFICATION REQUIREMENTS

(Applies only to Nonresidential Substitution-Based Treatment Centers for Opiate Addiction)

Note that T.C.A. §68-11-1607(c)(9)(A) states that "...Within ten (10) days of the filing of an application for a nonresidential substitution-based treatment center for opiate addiction with the agency, the applicant shall send a notice to the county mayor of the county in which the facility is proposed to be located, the state representative and senator representing the house district and senate district in which the facility is proposed to be located, and to the mayor of the municipality, if the facility is proposed to be located within the corporate boundaries of a municipality, by certified mail, return receipt requested, informing such officials that an application for a nonresidential substitution-based treatment center for opiate addiction has been filed with the agency by the applicant."

Failure to provide the notifications described above within the required statutory timeframe will result in the voiding of the CON application.

Please provide documentation of these notifications. ***Not applicable.***

DEVELOPMENT SCHEDULE

T.C.A. §68-11-1609(c) provides that a Certificate of Need is valid for a period not to exceed three (3) years (for hospital projects) or two (2) years (for all other projects) from the date of its issuance and after such time shall expire; provided, that the Agency may, in granting the Certificate of Need, allow longer periods of validity for Certificates of Need for good cause shown. Subsequent to granting the Certificate of Need, the Agency may extend a Certificate of Need for a period upon application and good cause shown, accompanied by a non-refundable reasonable filing fee, as prescribed by rule. A Certificate of Need which has been extended shall expire at the end of the extended time period. The decision whether to grant such an extension is within the sole discretion of the Agency, and is not subject to review, reconsideration, or appeal.

1. **Complete the Project Completion Forecast Chart on the next page. If the project will be completed in multiple phases, please identify the anticipated completion date for each phase.**
2. **If the response to the preceding question *indicates that the applicant does not anticipate completing the project within the period of validity as defined in the preceding paragraph,* please state below any request for an extended schedule and document the "good cause" for such an extension.**

PROJECT COMPLETION FORECAST CHART

Assuming the Certificate of Need (CON) approval becomes the final HSDA action on the date listed in Item 1. below, indicate the number of days from the HSDA decision date to each phase of the completion forecast.

Phase	Days Required	Anticipated Date [Month/Year]
1. Initial HSDA decision date		**April 2018**
2. Architectural and engineering contract signed		
3. Construction documents approved by the Tennessee Department of Health		
4. Construction contract signed		
5. Building permit secured		
6. Site preparation completed		
7. Building construction commenced		
8. Construction 40% complete		
9. Construction 80% complete		
10. Construction 100% complete (approved for occupancy		
11. *Issuance of License	**210**	**Nov. 2018**
12. *Issuance of Service	**240**	**Dec. 2018**
13. Final Architectural Certification of Payment		
14. Final Project Report Form submitted (Form HR0055)		

***For projects that *DO NOT* involve construction or renovation, complete Items 11 & 12 only.**

NOTE: If litigation occurs, the completion forecast will be adjusted at the time of the final determination to reflect the actual issue date

AFFIDAVIT

STATE OF Tennessee

COUNTY OF Williamson

Martin G. Schweinhart, President & Metro Knoxville HMA, LLC, being first duly sworn, says that he/she is the applicant named in this application or his/her/its lawful agent, that this project will be completed in accordance with the application, that the applicant has read the directions to this application, the Rules of the Health Services and Development Agency, and T.C.A. §68-11-1601, *et seq.*, and that the responses to this application or any other questions deemed appropriate by the Health Services and Development Agency are true and complete.

SIGNATURE/TITLE

Sworn to and subscribed before me this 5th day of January (Month), 2018 (Year) a Notary

Public in and for the County/State of Williamson/Tennessee

MARY ANN ECKMAN
STATE OF TENNESSEE NOTARY PUBLIC
WILLIAMSON COUNTY
My Commission Expires 05-16-2019

NOTARY PUBLIC

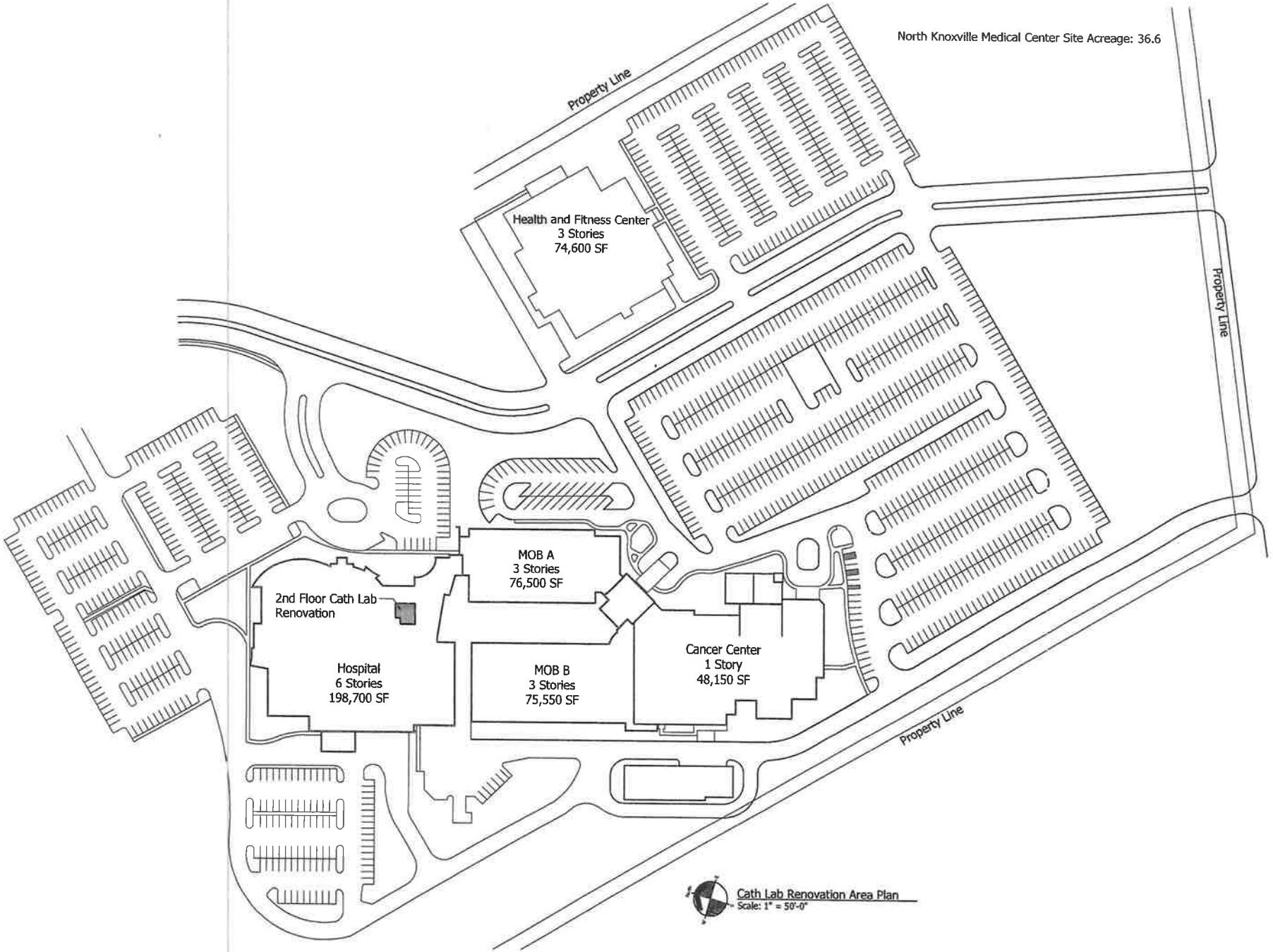
My commission expires 09/16 (Month/Day), 2019 (Year).

Appendix
North Knoxville Medical Center Therapeutic Cath CON

List of Attachments	
Attachment	**Information Included**
A-4A	Tennova Healthcare Organizational Documents
A-6A	Special Warranty Deed
A-6B.1	Site Plan
A-6B.2	Cardiac Cath Lab Floor Plans
A-6B.3	Public Transportation Information
A-10A	Licensed Bed Complement – Tennova Healthcare
B-Need-A.2	Licensure and Accreditation Documents
B-Need-A.3	Hospital Transfer Process Policy
B-Need-A.4	Quality Assurance Program
B-Need-A.8	DPH Cardiac Cath Calculations for 11-County Service Area
B-Need-A.16	Physicians' Curriculum Vitae
B-EconFeas-A.1	Filing Fee Check Copy
B-EconFeas-A.3	Equipment Quote
B-EconFeas-B	Project Funding Letters
B-EconFeas-F1	CHS Audited Financial Information
Proof of Publication	Proof of Publication

Attachment A-6B.1

Site Plan



Cath Lab Renovation Area Plan
Scale: 1" = 50'-0"

Tennova

Knoxville Tennessee

Cath Lab Renovation
Area plan

Revisions

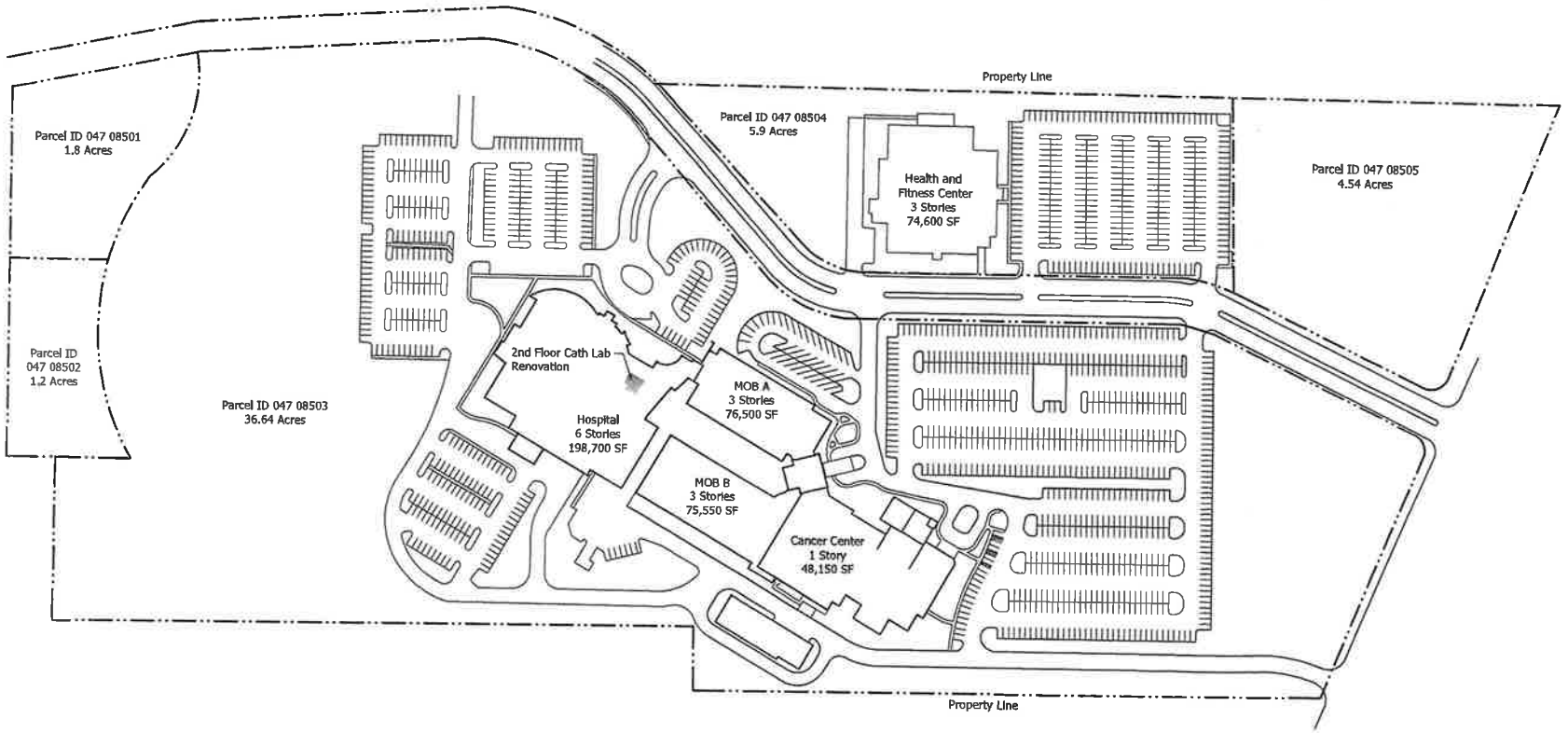
06

LMH ARCHITECTURE

Project Number
COM.1714

Date
February 23, 2018

Sheet Number
sd1.2



Cath Lab Renovation Area Plan
Scale:1 : 900

Tennova

Knoxville Tennessee

Cath Lab Renovation
Area plan

Revisions

MH ARCHITECTURE

Project Number
COM.1714

Date
February 23, 2018

Sheet Number
sd1.2

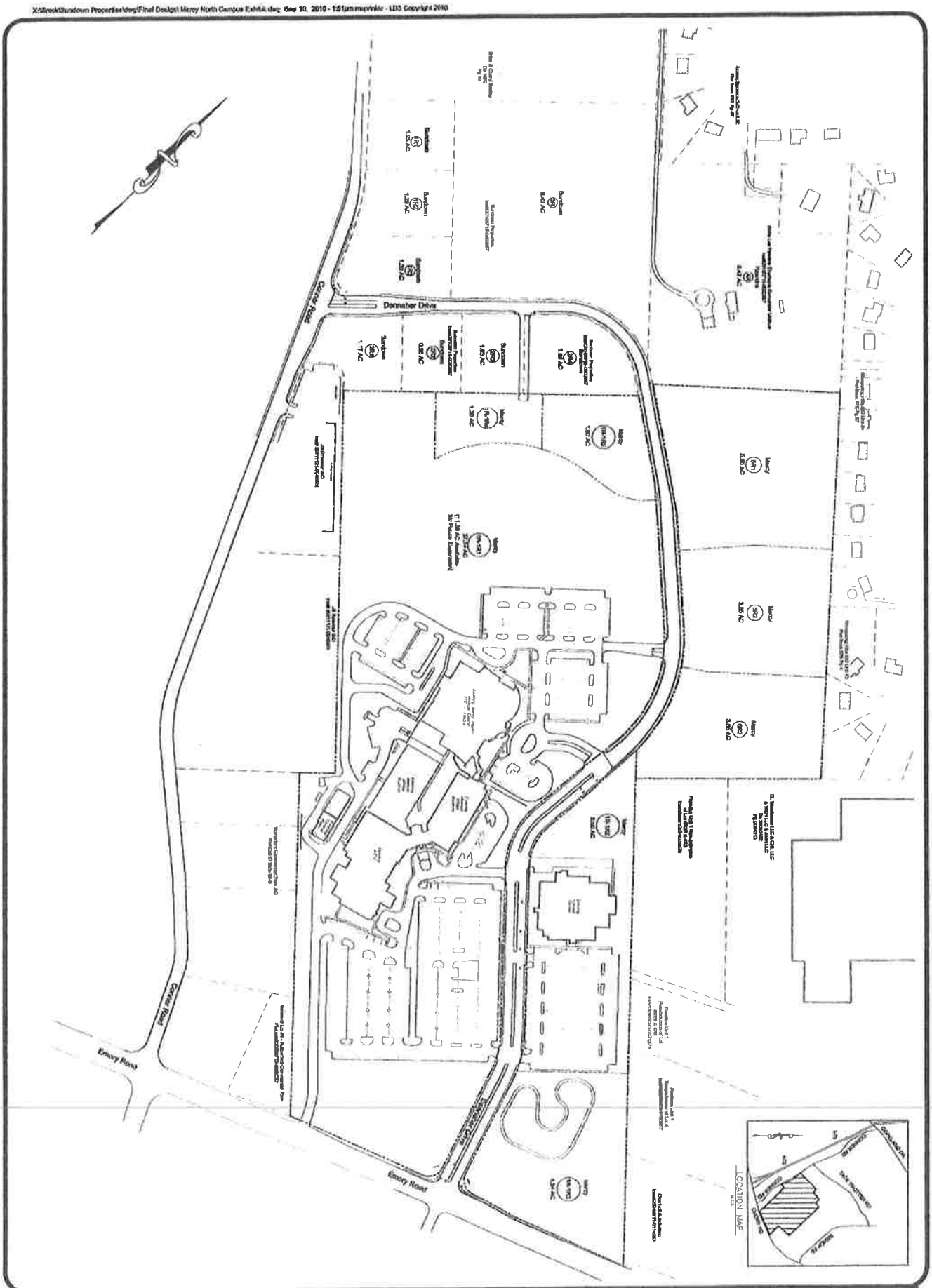


Exhibit 1

Job No.	210903
Date	9-15-10
Scale	1"=100'
Drawn By	
Checked	
Approved	

No.	Date	Revision

Drawing Description:

Mercy North Campus

LAND DEVELOPMENT SOLUTIONS

310 SIMMONS RD., SUITE K • KNOXVILLE, TENNESSEE 37922
PH 865-671-2281

Project:

Mercy North Campus

Mercy Health Partners

Knoxville, Tennessee

Attachment A-6B.2

Cardiac Cath Lab Floor Plans

Second Floor Suite Schedule

Suite Number	Smoke Compartment	Total Square Footage	Area Description	# of Remote Exit Access Doors	Suite Type
2.1	SC2.1	1,629	RADIOLOGY	2	NON-SLEEPING
2.2	SC2.1	2,466	LIBRARY	2	NON-SLEEPING
2.3	SC2.1	2,490	CATH LAB	2	NON-SLEEPING
2.4	SC2.2	480	SPA CALL	2	SLEEPING
2.5	SC2.1	4,447	PROV REQUIRED	2	NON-SLEEPING
2.6	SC2.1	2,869	PACU	2	NON-SLEEPING
2.7	SC2.1	5,508	NURSERY	2	NON-SLEEPING

Second Floor Smoke Compartments

Smoke Compartment	Total Square Footage	Occupancy Type	Travel Distance to Exit	Travel Distance to Smoke Barrier
SC2.1	18,470	EXISTING HEALTHCARE	175'	100'
SC2.2	7,349	EXISTING HEALTHCARE	129'	73'
SC2.3	12,804	EXISTING HEALTHCARE	183'	284'

Life Safety Information

Building Code Reviewed: NFPA 101 Life Safety Code (2012 Edition)
Construction Type: 1(332)
Occupancy Type: Existing Healthcare Business

Life Safety Legend

SMOKE COMPARTMENT BARRIER WALL

1 HOUR FIRE RESISTANCE RATING

OPENING PROTECTION - 1 3/4" THICK SOLID BONDED WOOD CORE DOORS OR BY CONSTRUCTION THAT RESISTS FIRE FOR NOT LESS THAN 20 MINUTES

DOORS SHALL BE SELF CLOSING OR AUTOMATIC CLOSING. DOORS SHALL NOT BE REQUIRED TO SWING IN THE DIRECTION OF EGRESS TRAVEL

1 HOUR FIRE RATED BARRIER

OPENING PROTECTION - 1 HOUR FIRE RATED DOORS FOR VERTICAL OPENING OR EXIT ENCLOSURES

OPENING PROTECTION - 3/4 HOUR FIRE RATED DOORS WHERE USED FOR OTHER THAN VERTICAL OPENINGS OR EXIT ENCLOSURES.

DOORS SHALL BE SELF CLOSING OR AUTOMATIC CLOSING

2 HOUR FIRE RATED BARRIER

OPENING PROTECTION - 1 1/2 HOUR FIRE RATED DOORS

DOORS SHALL BE SELF CLOSING OR AUTOMATIC CLOSING

EXIT ACCESS CORRIDOR

WALLS SHALL FORM A BARRIER TO LIMIT THE TRANSFER OF SMOKE

CORRIDOR DOORS - 1 3/4" THICK SOLID-BONDED-CORE WOOD OR OF CONSTRUCTION THAT RESISTS FIRE FOR NOT LESS THAN 20 MINUTES. DOORS HARDWARE SHALL BE POSITIVE LATCHING WITH THE EXCEPTION OF TOILET ROOMS, BATHROOMS, SHOWER ROOMS, LINEN CLOSETS, AND SIMILAR AUXILIARY SPACES THAT DO NOT CONTAIN FLAMMABLE OR COMBUSTIBLE MATERIALS.

SMOKE PARTITION

WALLS SHALL FORM A BARRIER TO LIMIT THE TRANSFER OF SMOKE

CORRIDOR DOORS - 1 3/4" THICK SOLID-BONDED-CORE WOOD OR OF CONSTRUCTION THAT RESISTS FIRE FOR NOT LESS THAN 20 MINUTES. DOORS HARDWARE SHALL BE POSITIVE LATCHING WITH THE EXCEPTION OF TOILET ROOMS, BATHROOMS, SHOWER ROOMS, LINEN CLOSETS, AND SIMILAR AUXILIARY SPACES THAT DO NOT CONTAIN FLAMMABLE OR COMBUSTIBLE MATERIALS

SUITES

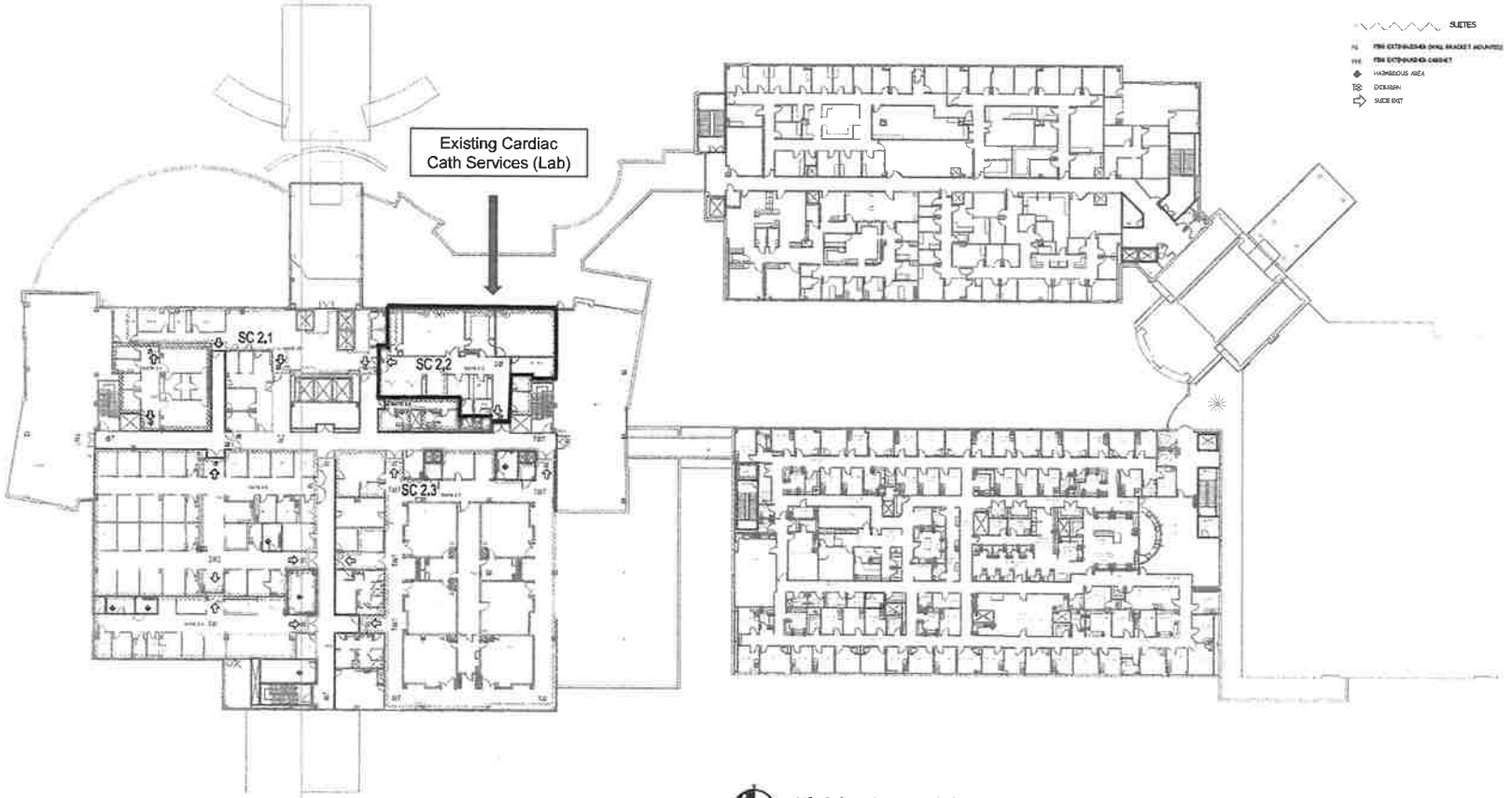
FEC FIRE EXTINGUISHER (WALL BRACKET MOUNTED)

FEC FIRE EXTINGUISHER CABINET

HAZARDOUS AREA

DECISION

SUITE EXIT



Life Safety Plan Second Floor
1"=20'

Tennova Healthcare

Life Safety Assessment
Powell Tennessee

Life Safety Plan Second Floor

Revisions

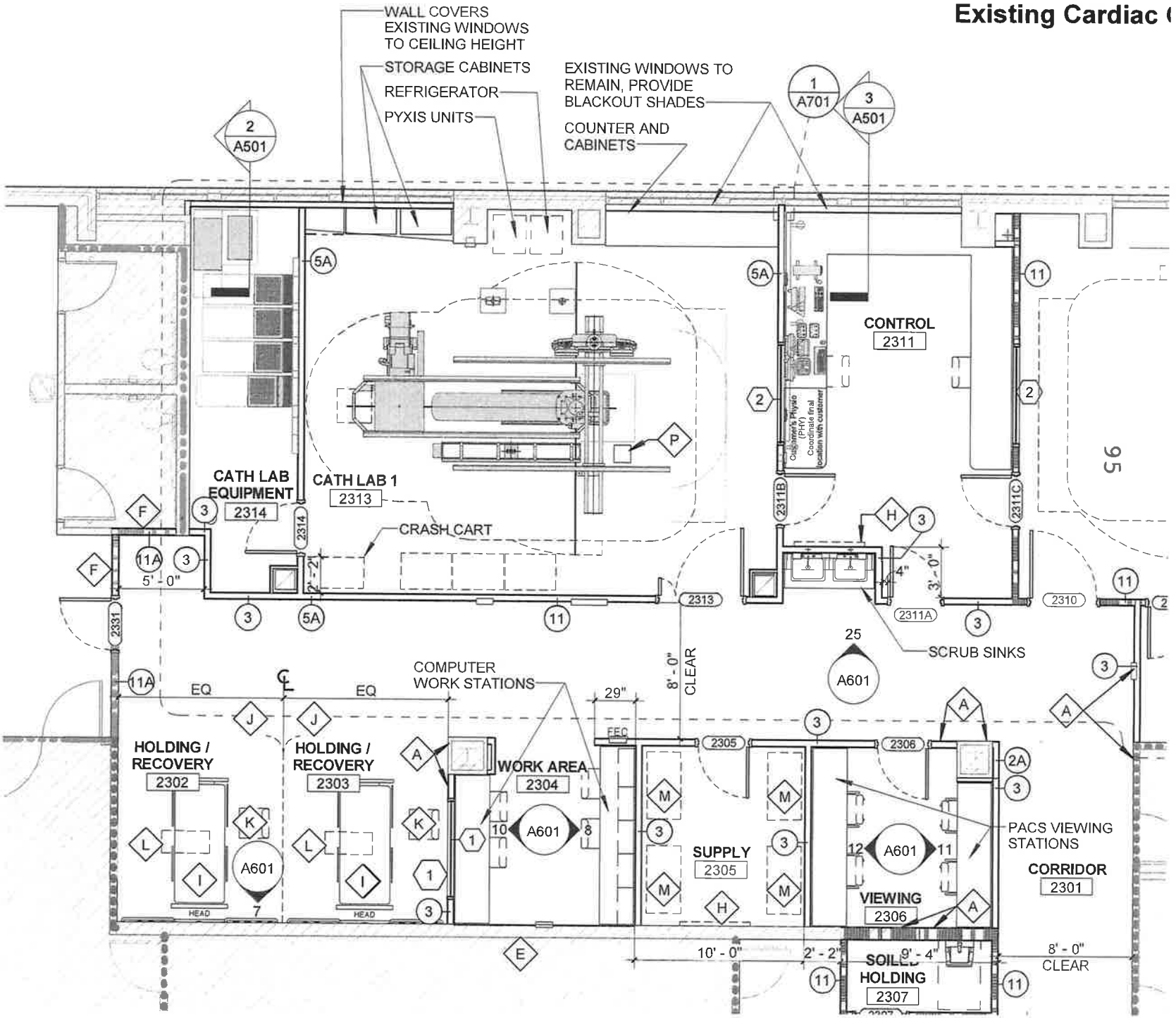
LMH ARCHITECTURE

Project Number
COM.1705

Date
June 22, 2017

Sheet Number
a1.2

North Knoxvill
Existing Cardiac



Attachment A-10A

Licensed Bed Complement – Tennova Healthcare

Attachment A.10A

Bed Complement for Metro Knoxville HMA, LLC d/b/a Tennova Healthcare*

10. Bed Complement Data

A. Please indicate current and proposed distribution and certification of facility beds.

	Current Licensed	Beds Staffed	Beds Proposed	*Beds Approved	**Beds Exempted	TOTAL Beds at Completion
1) Medical *(combined med/surg)*	415	309		1		416
2) Surgical						
3) ICU/CCU	64	56		4		68
4) Obstetrical	48	32				48
5) NICU	15	6		-5		10
6) Pediatric						
7) Adult Psychiatric	20	16				20
8) Geriatric Psychiatric	18	12				18
9) Child/Adolescent Psychiatric						
10) Rehabilitation	30	16				30
11) Adult Chemical Dependency						
12) Child/Adolescent Chemical Dependency						
13) Long-Term Care Hospital						
14) Swing Beds						
15) Nursing Home – SNF (Medicare only)						
16) Nursing Home – NF (Medicaid only)						
17) Nursing Home – SNF/NF (dually certified Medicare/Medicaid)						
18) Nursing Home – Licensed (non-certified)						
19) ICF/IID						
20) Residential Hospice						
TOTAL	610	447		0		610

**Beds approved but not yet in service* ***Beds exempted under 10% per 3 year provision*

*Metro Knoxville HMA, LLC consists of three hospital campuses in the Knoxville area, which have a combined total of 610 licensed beds and are operated under a single hospital license and Medicare provider number. Physicians Regional Medical Center is the main campus with 401 licensed beds. Satellite hospitals include the 108-bed North Knoxville Medical Center and the 101-bed Turkey Creek Medical Center. The bed complement above was approved through CN1408-033, Metro Knoxville HMA, d/b/a Tennova Healthcare – Physicians Regional Medical Center's partial hospital relocation.

Attachment B-Need-A.2

Licensure and Accreditation Documents

The Joint Commission

September 15, 2017

Tony Benton, CEO
CEO
Metro Knoxville HMA LLC
900 E. Oak Hill Avenue
Knoxville, TN 37917

Joint Commission ID #: 7852
Program: Hospital Accreditation
Accreditation Activity: 60-day Evidence of Standards Compliance
Accreditation Activity Completed: 09/15/2017

Dear Mr. Benton:

The Joint Commission is pleased to grant your organization an accreditation decision of Accredited for all services surveyed under the applicable manual(s) noted below:

- **Comprehensive Accreditation Manual for Hospitals**

This accreditation cycle is effective beginning July 01, 2017 and is customarily valid for up to 36 months. Please note, The Joint Commission reserves the right to shorten or lengthen the duration of the cycle.

Should you wish to promote your accreditation decision, please view the information listed under the 'Publicity Kit' link located on your secure extranet site, The Joint Commission Connect.

The Joint Commission will update your accreditation decision on Quality Check®.

Congratulations on your achievement.

Sincerely,

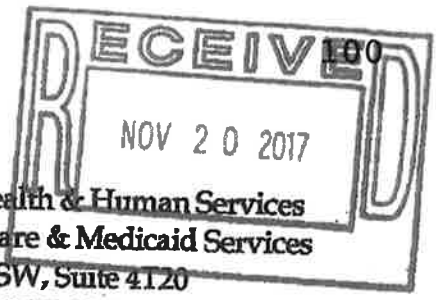
Mark Pelletier

Mark G.Pelletier, RN, MS

Chief Operating Officer

Division of Accreditation and Certification Operations

cc: Sharon
Kristen
Daniel
Dru



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Department of Health & Human Services
Centers for Medicare & Medicaid Services
61 Forsyth Street, SW, Suite 4T20
Atlanta, Georgia 30303-8909

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

November 15, 2017

Tony Benton, Chief Executive Officer
Tennova Healthcare
900 East Oak Hill Avenue
Knoxville, TN 37917

Re: CMS Certification Number 44-0120

Dear Mr. Benton:

I am pleased to inform you that as a result of the follow-up survey conducted on November 9, 2017 by the Tennessee State Agency, your facility was found in compliance with the Medicare requirements to participate as a Hospital and will continue to be deemed to meet applicable Medicare requirements based upon accreditation by the Joint Commission.

We appreciate your efforts and steps taken to correct the Medicare deficiencies. If you have any questions, please contact Jackie Whitlock at (404) 562-7437 or jacqueline.whitlock@cms.hhs.gov.

Sincerely yours,

Jackie Whitlock for

Sandra M. Pace
Associate Consortium Administrator
Division of Survey and Certification

cc: Tennessee State Survey Agency
Joint Commission (JC)

Tennova™ Healthcare

September 12, 2017

Centers for Medicare & Medicaid Services
ATTN: Sandra M. Pace
61 Forsyth Street, SW, Suite 4T20
Atlanta, Georgia 30303-8909

State of Tennessee Department of Health
ATTN: Gail Rubright
7175 Strawberry Plains Pike, Suite 103
Knoxville, Tennessee 37914

Re: CMS Certification Number 440120
Validation Survey – ***Revised***

Dear Ms. Pace and Ms. Rubright:

This letter and the enclosed *revised* Plan of Correction are in response to the letter from CMS dated August 30, 2017 – which we received on August 31, 2017 – in regards to the validation survey completed at our facilities on August 16, 2017. We trust you will find the actions we have taken acceptable. We have also enclosed a number of key supporting documents reflecting the implementation of these actions and improvements.

Please let me know if you have any questions. We appreciate your help with this process.

Sincerely,

Tony Benton
Chief Executive Officer

Enclosures
Via Facsimile and Overnight Delivery

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	(X2) MULTIPLE CONSTRUCTION	(X3) DATE SURVEY COMPLETED
	440120	A. BUILDING _____ B. WING _____	08/16/2017

NAME OF PROVIDER OR SUPPLIER	STREET ADDRESS, CITY, STATE, ZIP CODE
TENNOVA HEALTHCARE	900 EAST OAK HILL AVENUE KNOXVILLE, TN 37917

(X4) ID PREFIX TAG	SUMMARY STATEMENT OF DEFICIENCIES (EACH DEFICIENCY MUST BE PRECEDED BY FULL REGULATORY OR LSC IDENTIFYING INFORMATION)	ID PREFIX TAG	PROVIDER'S PLAN OF CORRECTION (EACH CORRECTIVE ACTION SHOULD BE CROSS-REFERENCED TO THE APPROPRIATE DEFICIENCY)	(X5) COMPLETION DATE
A 084	Continued From page 3 Interview with the Dialysis Inpatient Program Manager (DIPM) on 8/16/17 at 10:45 AM, in the dialysis water treatment room, confirmed the correct location for obtaining water samples for total chlorine testing is the SP1 valve located between the first and second carbon filters and the facility failed to follow facility policy.	A 084	Pg. 3-4 of 44	
A 464	482.24(c)(2) CONTENT OF RECORD: ORDERS DATED & SIGNED All orders, including verbal orders, must be dated, timed, and authenticated promptly by the ordering practitioner or by another practitioner who is responsible for the care of the patient only if such a practitioner is acting in accordance with State law, including scope-of-practice laws, hospital policies, and medical staff bylaws, rules, and regulations. This STANDARD is not met as evidenced by: Based on review of facility policy, medical record review, and interview, the facility failed to ensure physician's orders were timed and dated for 1 patients (#2) of 60 medical records reviewed. The findings included: Review of facility policy "Medication Orders" dated 6/7/17 revealed "...date and time the order..." Medical record review revealed Patient #2 was admitted to Facility A on 8/14/17 for a Suicide Attempt. Medical record review revealed a physician's	A 464	Pg. 5-6 of 44	

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	(X2) MULTIPLE CONSTRUCTION	(X3) DATE SURVEY COMPLETED
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TENNOVA HEALTHCARE	900 EAST OAK HILL AVENUE KNOXVILLE, TN 37917

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A 466	Continued From page 12 was signed on 8/14/17 at 12:12 PM (31 hours and 50 minutes after the baby was born). Interview with Nurse Leader #6, Quality Coordinator #1, and RN #5 on 8/15/17 at 11:15 AM, in Facility A L&D nurses' station, confirmed the facility failed to ensure consent for Inpatient/Outpatient Conditions of Admission and Consent to Medical Treatment was signed, dated, and timed prior to treatment and failed to follow facility policy. Interview with RN #3 on 8/15/17 at 3:50 PM, in Facility B's Labor and Delivery nurses' station, confirmed there was no signed consent for treatment form in the medical record for Patient #47. Interview with the Metro Chief Quality Officer on 8/16/17 at 12:56 PM, in Facility A Conference Room, confirmed the facility failed to follow facility policy.	A 466	Pg 7-8 of 44	
A 749	482.42(a)(1) INFECTION CONTROL PROGRAM The infection control officer or officers must develop a system for identifying, reporting, investigating, and controlling infections and communicable diseases of patients and personnel. This STANDARD is not met as evidenced by: Based on facility policy review, review of facility document, medical record review, observation, and interview, the facility failed to ensure intravenous sites (IV) were timed and dated when inserted for 3 patients (#23, #25, #37) of 4 patients observed with peripheral IV's; failed to	A 749	Pg 9-13 of 44	

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	(X2) MULTIPLE CONSTRUCTION	(X3) DATE SURVEY COMPLETED
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A 749	Continued From page 13 ensure expired patient care supplies were not available for patient use in 2 of 3 Emergency Departments (ED), in 1 of 2 Special Care Nurseries observed, in 6 of 45 clean supply storage areas observed, and 1 of 2 Post-Operative Care Units (PACU); failed to maintain a sanitary environment in 1 of 4 laboratories observed; and failed to ensure expired medications were not available for patient use in 2 of 22 medication storage areas observed. The findings included: Review of a facility policy "Nursing Procedures" dated 6/2/16 revealed "...Refer to Mosby's [medical textbook] and/or AACN [American Association of Critical-Care Nurses] for procedures (ex [example] IV Therapy)..." Review of facility policy "Stock Rotation and Expiration Policy" dated 3/9/17 revealed "...Expired products and devices shall not be made available for patient use...Expiration dates must be monitored on a regular basis...special attention must be given to expiration dates...the expiration dates of products and devices shall be checked during the routine review of area inspections and all products and devices scheduled to expire during the next month shall be removed...each department manager should conduct a quarterly review of supplies checking for expired or close dates..." Review of facility document "Elsevier Performance Manager" (healthcare education and learning management system), with no date, revealed "...label the dressing...with the date and time of application and the nurse's	A 749	Pg. 9-10 of 44 Pg 10-12 of 44 Pg. 9-10 of 44	

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	(X2) MULTIPLE CONSTRUCTION	(X3) DATE SURVEY COMPLETED
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A 749	Continued From page 14 Initials...Rational: A label provides immediate access to data regarding when the IV catheter was inserted and when to change the dressing and rotate the site...inspect the color of the insertion site and check for swelling...unexpected outcomes...bleeding at venipuncture site..." Medical record review revealed Patient #25 was admitted to Facility A on 8/13/17 for Left Sided Weakness. Observation and interview with Registered Nurse (RN) #4, on 8/14/17 at 1:13 PM, in the Neurosurgical Intensive Care Unit (ICU), revealed an Intravenous (IV) line in the left forearm. Continued review revealed the IV site was not dated, timed, or initialed by the staff member who inserted the IV. Interview with RN #4 confirmed the IV should have been dated, timed, and initialed with the insertion date. Medical record review revealed Patient #23 was admitted to Facility A on 8/11/17 for Chest Pain. Observation and interview with Nurse Leader (NL) #1 of Patient #23 on 8/14/17 at 2:16 PM, in the patient's room, revealed the patient had an IV line in the right forearm. Continued observation revealed the IV site was not dated, timed, or initialed by staff member who inserted the IV. Interview with NL #1 confirmed the site was not dated, timed, or initialed when inserted. Medical record review revealed Patient #37 was admitted to Facility A on 8/15/17 for a Right Partial Knee Replacement. Observation of Patient #37 on 8/15/17 at 2:09 PM, in the patient's room, revealed the patient	A 749	pg 9-10 of 44	

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A 749	Continued From page 15 had an IV in the left hand. Continued observation revealed the IV was not dated, timed, or initialed by the staff member who inserted the IV. Interview with NL #5 on 8/15/17 at 2:15 PM, at the nurses' station, confirmed the IV should be dated, timed, and initialed upon insertion. Observation and interview with the Emergency Department (ED) Director on 8/14/17 at 11:13 AM, in the ED clean utility room at Facility A, revealed 5 blue top vacutainers (used to collect blood) and one blood culture specimen bottle with an expiration date of 6/30/17. Interview with the ED Director confirmed the vacutainers and blood culture bottle were expired and were available for patient use. Observation and interview with the Special Care Nursery NL on 8/14/17 at 11:15 AM, of a supply storage area in the Special Care Nursery at Facility A, revealed 3 Special Needs Feeders (bottle and nipple use for infants with impaired sucking ability) with an expiration date of 1/2017. Interview with the NL confirmed the special needs feeders were expired and were available for patient use. Observation and interview with the Laboratory Director at Facility A, on 8/14/17 at 1:25 PM, in the microbiology lab, revealed an air conditioner vent with a buildup of white debris. Continued observation revealed a fan was positioned in front of the air conditioning unit and was blowing air toward the microbiology table. Further observation revealed a laboratory technician was seated at the table processing microbiology specimens. Interview with the Laboratory Director confirmed the debris was able to be removed with tissue paper and she was not aware of when the	A 749	Pg 9-10 of 44 Pg. 10-12 of 44 Pg 12-13 of 44	

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	(X2) MULTIPLE CONSTRUCTION	(X3) DATE SURVEY COMPLETED
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A 749	Continued From page 16 air conditioning vent was last cleaned. Observation and interview with the Risk Manager (RM) and NL #1 on 8/14/17 at 1:56 PM at Facility A, in the Neuro ICU Clean Supply room, revealed a 18 french (Fr) 30 cubic centimeter (cc) (size of the catheter and balloon) catheter with an expiration date of May 2016 and a 22 Fr 30 cc catheter with an expiration date of September 2015. Interview with the RM and NL #1 confirmed the items were expired and were available for patient use. Observation and interview with the Director of Operations for Inpatient Services for the Dialysis department at Facility A on 8/14/17 at 2:30 PM, in the Dialysis department, revealed the following: 1 package of five electrodes with an expiration date of 2/2017and 1 package of five electrodes with an expiration date of 11/2016. Interview with the Director of Operations confirmed the electrodes were expired and were available for patient use. Observation and interview with Chief Nursing Officer (CNO) #1 and NL #3 on 8/15/17 at 9:34 AM, in ED room #4 at Facility C, revealed the following items were stored in a cabinet under the sink: a call light, an oxygen flow meter, a suction meter and tubing, a suction tube, patient belongings bags, and handy wipes. Further observation revealed a sign under the sink stated "nothing under the sink." Interview with CNO #1 and NL #3 confirmed the items were not to be placed under the sink. Observation and interview with the ED NL on 8/15/17 at 10:00 AM, of the ED medication room at Facility C, revealed 1 bottle of urinalysis dipsticks with an expiration date of 4/2016 and 1	A 749	Pg 10-12 of 44	

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A 749	Continued From page 17 box of Silver Nitrate Applicators (used to stop bleeding or prevent a wound from becoming infected) with an expiration date of 6/2017. Interview with the ED NL confirmed the supplies were expired and were available for patient use. Observation and interview with the ED NL on 8/15/17 at 10:30 AM at Facility C, of the Neonatal (Infant) Resuscitation Cart revealed: *14 green top lab specimen tubes with expiration date of 12/2016 *5 green top lab specimen tubes with expiration date of 6/2017 *2 vacutainers (used to draw blood) with expiration date of 11/2016 *1 Umbilical Venous Catheter (catheter placed in the vein of the umbilical cord to administer IV fluids) with an expiration date of 2/2015. Interview with the ED NL confirmed the supplies were expired and were available for patient use. Observation and interview with the Assistant Chief Nursing Officer (ACNO) and the Infection Control Preventionist (ICP) #1, on 8/15/17 at 12:58 PM, in the Intensive Care Unit (ICU) Medication Storage Area at Facility C, revealed the following: one 500 milliliter (ml) bag of 5% (percent) Dextrose (IV sugar solution) with an expiration date of 6/2016; 49 Hemoccult cards (device to test for blood in stool) with an expiration date of 1/31/17. Interview with the ACNO #1 and ICP #1 confirmed the supplies were expired and were available for patient use. Observation and interview with the ACNO #1 and the ICP #1 on 8/15/17 at 1:25 PM, in the Neuro Step Down Unit Medication Storage Area at Facility C, revealed 3 bags of 1000 ml 5%	A 749	Pg 10-12 of 44	

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	(X2) MULTIPLE CONSTRUCTION	(X3) DATE SURVEY COMPLETED
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A 749	Continued From page 18 Dextrose solution with an expiration date of December 2016; 1 bag of 1000 ml of Dextrose solution with an expiration date of November 2016; and 1 1000 ml bag of 5% Dextrose with an expiration date of February 2017. Interview with ACNO #1 and ICP #1 confirmed the items were expired and were available for patient use. Observation and interview with ACON #1, ICP #1, and the Director of Surgical Services (DSS) on 8/15/17 at 1:57 PM, in the PACU Clean Storage Room at Facility C, 2 Stockinettes (supplies used to isolate limbs during surgery) with an expiration date of June 2017; 2 Pressure Monitoring Sets (single-use kits that relay blood pressure information from a pressure monitoring catheter to a patient monitoring system) with an expiration date of 1/23/16; and 2 Pressure Monitoring Sets with an expiration date of 6/9/17. Interview with the ICP #1 and the DSS confirmed the items were expired and were available for patient use. Observation and interview with the DSS on 8/15/17 at 2:05 PM, in the PACU at Facility C, revealed 20 culture swabs with an expiration date of 11/2015. Interview with the DSS confirmed the culture swabs were expired and were available for patient use. Observation and interview with ACON #1, ICP #1 and the DSS on 8/15/17 at 2:20 PM, in the Gastroenterology Lab hallway at Facility C, revealed a storage cart with a specimen cup of Formalin solution (fixative solution for biopsy tissue) with an expiration date of March 2017. Interview with ACON #1, ICP #1 and the DDS confirmed the solution was expired and was available for patient use.	A 749	Pg 10-12 of 44	

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR MEDICARE & MEDICAID SERVICES

PRINTED: 08/30/2017
FORM APPROVED
OMB NO. 0938-0391

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	(X2) MULTIPLE CONSTRUCTION	(X3) DATE SURVEY COMPLETED
	440120	A. BUILDING 09 - EMORY ROAD NORTH HOSPITAL B. WING _____	08/23/2017

NAME OF PROVIDER OR SUPPLIER	STREET ADDRESS, CITY, STATE, ZIP CODE
TENNOVA HEALTHCARE	900 EAST OAK HILL AVENUE KNOXVILLE, TN 37917

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K 000	INITIAL COMMENTS A life safety survey was conducted by the state of Tennessee Department of Health, Division of health licensure and regulation office of health care facilities on 8/14/17. During this life safety survey, Tennova Healthcare North Knoxville Hospital was not found to be in substantial compliance with the requirements for participation in Medicare/Medicaid at 42 CFR Subpart 483.70(a), Life safety from fire, and the related National Fire Protection Association (NFPA) standard 101 - 2012 edition. The requirement at 42 CFR, Subpart 483.70(a) is NOT MET as evidenced by:	K 000	pg 31 of 44	
K 324	NFPA 101 Cooking Facilities Cooking Facilities Cooking equipment is protected in accordance with NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, unless: * residential cooking equipment (i.e., small appliances such as microwaves, hot plates, toasters) are used for food warming or limited cooking in accordance with 18.3.2.5.2, 19.3.2.5.2 * cooking facilities open to the corridor in smoke compartments with 30 or fewer patients comply with the conditions under 18.3.2.5.3, 19.3.2.5.3, or * cooking facilities in smoke compartments with 30 or fewer patients comply with conditions under 18.3.2.5.4, 19.3.2.5.4. Cooking facilities protected according to NFPA 96 per 9.2.3 are not required to be enclosed as hazardous areas, but shall not be open to the corridor. 18.3.2.5.1 through 18.3.2.5.4, 19.3.2.5.1 through	K 324	pg. 32-33 of 44	

LABORATORY DIRECTOR'S OR PROVIDER/SUPPLIER REPRESENTATIVE'S SIGNATURE | TITLE | (X6) DATE

Any deficiency statement ending with an asterisk (*) denotes a deficiency which the institution may be excused from correcting providing it is determined that other safeguards provide sufficient protection to the patients. (See instructions.) Except for nursing homes, the findings stated above are disclosable 90 days following the date of survey whether or not a plan of correction is provided. For nursing homes, the above findings and plans of correction are disclosable 14 days following the date these documents are made available to the facility. If deficiencies are cited, an approved plan of correction is requisite to continued program participation.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR MEDICARE & MEDICAID SERVICES

PRINTED: 08/30/2017
FORM APPROVED
OMB NO. 0938-0391

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	440120	A. BUILDING 03 - EMORY ROAD NORTH HOSPITAL B. WING _____	08/23/2017

NAME OF PROVIDER OR SUPPLIER	STREET ADDRESS, CITY, STATE, ZIP CODE
TENNOVA HEALTHCARE	900 EAST OAK HILL AVENUE KNOXVILLE, TN 37917

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K 324	Continued From page 1 19.3.2.5.5, 9.2.3, TIA 12-2 This STANDARD is not met as evidenced by: Based on observation and interview, the facility failed to ensure dietary staff were properly trained. This deficiency affected one of fifteen smoke compartments. NFPA 101, 9.2.3 NFPA 96, 10.5.7 The findings include: Observation and interview with the maintenance director and two dietary staff on 8/21/17 at 9:00 AM revealed two of two dietary staff were unsure of what to do in the event of a hood fire, and which manual pull station went with the three hood suppression systems. The engineering director was present when the deficiency was identified and was acknowledged by the administration during the exit conference on 8/22/17.	K 324	pg 32-33 of 44	
K 902	NFPA 101 Gas and Vacuum Piped Systems - Other Gas and Vacuum Piped Systems - Other List in the REMARKS section any NFPA 99 Chapter 5 Gas and Vacuum Systems requirements that are not addressed by the provided K-Tags, but are deficient. This information, along with the applicable Life Safety Code or NFPA standard citation, should be included on Form CMS-2567.	K 902	pg. 34 of 44	

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	440120	A. BUILDING 03 - EMORY ROAD NORTH HOSPITAL B. WING _____	08/23/2017

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K 902	Continued From page 2 Chapter 5 (NFPA 99) This STANDARD is not met as evidenced by: Based on observation, record review and interview the facility failed to ensure medical gas system was code compliant. This deficiency affected two of fifteen smoke compartments. NFPA 101, 19.3.2.4 NFPA 99, 5.1.4.8(1) The findings include: 1. Record review on 8/21/17 at 10:00 AM of the 6/22-24/17 Medical Gas Inspection report revealed two corridors where there is not an intervening wall between the zone valves and the outlets/inlets that they control. 2. Observation and interview with the engineering director on 8/21/17 at 10:30 AM verified that these two areas were non-compliant. The engineering director was present when the deficiencies were identified and was acknowledged by the administration during the exit conference on 8/22/17	K 902	Pg 34 of 44	

Tag	Deficiency	Corrective Actions	Responsible Person	Completion Date
A454	482.24(c)(2) CONTENT OF RECORD: ORDERS DATED & SIGNED All orders, including verbal orders, must be dated, timed, and authenticated promptly by the ordering practitioner or by another practitioner who is responsible for the care of the patient only if such a practitioner is acting in accordance with State law, including scope-of-practice laws, hospital policies, and medical staff bylaws, rules, and regulations. This STANDARD is not met as evidenced by: Based on review of facility policy, medical record review, and interview, the facility failed to ensure physician's orders were timed and dated for 1 patients (#2) of 60 medical records reviewed.	The Metro CQO conducted an internal review of the related policies and documents immediately upon discovery of the issue during the survey. The Metro CQO reviewed the policies entitled "Medication Orders" and "Verbal Orders Policy", the Tennova Metro Hospitals Medical Staff Bylaws and Rules and Regulations and the 2017 Medical Staff Orientation Manual. All documents were determined to adequately define the requirement for dating and timing physician orders and verbal orders. Attachments: • Medication Orders Policy • Verbal Orders Policy • excerpt from Medical Staff Rules & Regulations • excerpt from Medical Staff Orientation Manual The Metro CQO provided communication to the Administrative Leaders of the Hospitalist Group, which has newly transitioned on July 1, 2017. This communication included specific examples of entries lacking date and/or time, and excerpts from the Medical Staff Rules and Regulations and the Medical Staff Orientation Manual regarding dating and timing of entries into the medical record. The Administrative Leaders of the Hospitalist Group provided communication to all providers within the group. The information will also be shared at shift check out meetings within the group. The Metro CQO communicated with the Chief of the Medical Staff regarding the most effective method to promote physician compliance. The Chief of Staff and Metro CQO provided education to the medical staff regarding the requirement to date/time handwritten physician orders in the medical record via Medical Department meetings, email communication and postings in strategic locations including physician lounges and dictation areas. The Quality Department staff will perform audits of 70 handwritten orders/ month to confirm the presence of date and time until substantial compliance (90%) is achieved for 3 consecutive months, and will be reported monthly to the Medical Executive Committee and at least quarterly to the Board of Trustees.	Metro CQO Metro CQO Metro CQO Chief of Staff Metro CQO Metro CQO	8/14/17 9/6/17 9/7/17 9/22/17 Beginning 9/12/17; ongoing

Tag	Deficiency	Corrective Actions	Responsible Person	Completion Date
		Attachment: Timing and Dating Audit tool		

Tag	Deficiency	Corrective Actions	Responsible Person	Completion Date
A 749	482.42(a)(1) INFECTION CONTROL PROGRAM The infection control officer or officers must develop a system for identifying, reporting, investigating, and controlling infections and communicable diseases of patients and personnel This STANDARD is not met as evidenced by: Based on facility policy review, review of facility document, medical record review, observation and interview, the facility failed to ensure:			
	Failed to ensure intravenous sites (IV) were timed and dated when inserted for 3 patients (#23, #25, #37) of 4 patients observed with peripheral IV's	The Metro CNOs began conducting an internal review of the policy and practice immediately upon discovery of the issue during the survey. The Metro CNOs reviewed the policy entitled "Nursing Procedures" and determined it to be inadequate as it lacked clarity regarding peripheral IV therapy. The policy entitled "Peripheral IV Therapy Policy" was developed by the CNOs using references from the Mosby's Procedures and CDC guidelines. Attachment: Peripheral IV Therapy Policy The CNOs and Materials Management Leaders assessed the IV kits at each facility and were found to have adequate supplies to facilitate labeling of IV sites. Attachment: IV Start Kit Contents	Metro CNOs Metro CNOs Metro Materials Management Leaders	8/14/17 9/6/17 9/6/17

Tag	Deficiency	Corrective Actions	Responsible Person	Completion Date
		The Nursing Leaders educated RN and LPN staff who insert IVs using shift huddles, department meetings and "read and sign" review of the policy "Peripheral IV Therapy Policy" and/or educational flyer. The education emphasizes the requirement to label all sites with date and time of insertion. Any staff members not able to complete the training due to vacation, FMLA or other reason are required to be educated by the Nursing Leaders or designee prior to starting their first shift back to work. Attachment: IV therapy education flyer	Metro CNOs	9/24/17
		The Metro CNOs reviewed the elements included in bedside shift report and confirmed the inspection of IV sites is included during this process, including the labeling of date and time of insertion. The Nursing Leaders educated RN and LPN staff who insert IVs using shift huddles, department meetings, "read and sign" review of the policy "Peripheral IV Therapy Policy" and/or educational flyer. The education emphasizes the requirement to label all sites with date and time of insertion. Any staff members not able to complete the training due to vacation, FMLA or other reason are required to be educated by the Nursing Leaders or designee prior to starting their first shift back to work. Attachment: IV therapy education flyer	Metro CNOs	9/24/17
		The PICC/vascular access teams at each facility will perform audits of 70 IV sites/month to confirm they are labeled with date/time. The audits will continue until substantial compliance (90%) is achieved for 3 consecutive months, and will be reported to all facility Quality and Safety Committee meetings and at least quarterly to the Medical Executive Committee and the Board of Trustees. Attachment: IV site documentation audit tool	Metro CNOs	Beginning 9/25/17; ongoing
	Failed to ensure expired supplies were not available for patient use in 2 or 3 Emergency Departments (ED), in 1 of 2 Special Care Nurseries observed, in 6 of 45 clean supply	The expired supplies were immediately removed from use upon discovery during the survey.	Clinical Department Leaders	8/15/17
		The policy entitled "Stock Rotation and Expiration" was reviewed by Metro Materials Management Directors/Managers and was determined to be adequate. Attachment: Stock Rotation and Expiration Policy	Metro Materials Management Directors/Managers	9/06/17
		Metro Materials Management Directors/Managers educated the Materials	Metro Materials	9/22/17

Tag	Deficiency	Corrective Actions	Responsible Person	Completion Date
	storage areas observed, in 1 of 2 Post-Operative Care Units (PACU) and in 2 of 22 medication storage areas observed.	Management staff using "read and sign" review of the policy "Stock Rotation and Expiration", emphasizing processes to ensure no expired supplies are delivered to patient care units – and processes to stock supplies in patient care units with the earliest expiration date up front. Any staff members not able to complete the training due to vacation, FMLA or other reason are required to be educated by the Materials Management Director/Manager or designee prior to starting their first shift back to work.	Management Directors/Managers	
		Metro Clinical Department Leaders and designees educated staff in Clinical Departments using shift huddles, department meetings, and "read and sign" review of the policy "Stock Rotation and Expiration" and/or educational flyer. This education emphasized the importance of ensuring patient care supplies available for patient use are not expired, and to always verify the expiration date before using any supply and discard if an expired supply is identified. Any staff members not able to complete the training due to vacation, FMLA or other reason are required to be educated by their Department Leader or designee prior to starting their first shift back to work. Attachment: Expired Supplies Educational Flyer	Metro Clinical Department Leaders	9/29/17
		Metro Clinical Department Leaders and designees performed a complete inventory of all supplies in their departments, with expiration dates validated and par levels assessed. Any expired supplies were immediately removed.	Metro Clinical Department Leaders	10/2/17
		The facility Quality Directors will facilitate weekly rounds in a minimum of 5 units/week per facility. Metro Continuous Survey Readiness (CSR) Team members will perform rounds in clean supply storage areas and medication rooms – in Emergency Departments, Inpatient Units, Dialysis Departments, GI Labs, and Post-Operative Care Units to validate compliance with ensuring patient care supplies available for patient use are not expired. Storage carts and neonatal resuscitation carts located in any of these areas will also be checked for expired supplies during the weekly rounds. Items to be checked include blood collection tubes and bottles, special needs feeders, foley catheters, electrodes, urinalysis dipsticks, silver nitrate applicators, umbilical catheters, hemoccult cards, IV fluids, stockinettes, single-use pressure monitoring sets, culture swabs, and Formalin	Metro Quality Directors	Beginning week of 10/2/17; ongoing

Tag	Deficiency	Corrective Actions	Responsible Person	Completion Date
		solution – as applicable to the unit/cart being evaluated. At least 5 different types of supplies will be checked each week in each area. If any expired items are found, the Clinical Department Leader will be immediately notified to address and resolve the issue collaboratively with the Materials Management Director/Manager. Weekly rounds will continue until substantial compliance (90%) is achieved for 3 consecutive months, and will be performed on a quarterly basis thereafter. Results of weekly rounds will be reported at each Quality/Safety Committee (QSC) meeting until substantial compliance (90%) is achieved for 3 consecutive months, and will be reported at least quarterly to the Medical Executive Committee and the Board of Trustees.	Metro Quality Directors	9/8/17
	Failed to maintain a sanitary environment in 1 of 4 laboratories observed.	Immediately after the survey on 8/14/17, the Laboratory Staff cleaned all floor model air conditioning units in the 2A Laboratory areas. Cleaning was performed with an approved bleach germicidal product. All floor model air conditioning units in the 2A Laboratory areas were inspected by the Laboratory Director to ensure air conditioner grill cleanliness was sustained. Engineering personnel performed repairs on the affected air conditioning unit, replacing the insulation on the door and in the unit. Engineering personnel inspected and performed repairs as deemed necessary on the remaining air conditioning units throughout the Laboratory. The Preventative Maintenance Procedure entitled "FIL02" was reviewed by the PRMC Director of Support Services, and modifications were made to clarify several steps in this procedure. Attachment: Preventative Maintenance Procedure FIL02 The PRMC Director of Support Services and designees educated the Engineering staff using read and sign review of the Preventative Maintenance Procedure	Laboratory Director Laboratory Director PRMC Director of Support Services PRMC Director of Support Services PRMC Director of Support Services PRMC Director of Support Services	8/14/17 9/5/17 9/8/17 9/29/17 9/7/17 9/29/17

Tag	Deficiency	Corrective Actions	Responsible Person	Completion Date
		"FIL02", emphasizing the tasks involved in performing preventive maintenance checks on floor model air conditioning units. Any staff members not able to complete the training due to vacation, FMLA or other reason are required to be educated by the PRMC Director of Support Services or designee prior to starting their first shift back to work.		
		Engineering personnel performed a complete inspection of all similar model air conditioning units in patient care areas in the facility – and performed preventive maintenance on the units which did not meet cleanliness expectations on initial inspection.	Engineering Personnel	10/13/17
		The Laboratory Director determined that fans would no longer be utilized in the Microbiology Laboratory.	Laboratory Director	9/6/17
		The Microbiology Manager added the following maintenance item to the Microbiology monthly maintenance log: "Inspect all floor model AC units and clean as needed; definition: clean top grill with bleach germicidal spray. Call Engineering to change filter if indicated."	Microbiology Manager	9/11/17
		The Microbiology Manager educated Microbiology personnel on the requirement to no longer utilize fans, and on the addition to the Microbiology monthly maintenance log.	Microbiology Manager	9/22/17
		The Microbiology Manager will review/audit the Microbiology monthly maintenance checks to ensure they have occurred as planned with the revised section on AC units documented appropriately, until full compliance (100%) is achieved for 3 consecutive months. Any noted issues with these monthly checks will be reported to the Laboratory Director for immediate resolution.	Microbiology Manager	9/29/17
		Audit results will be reported at each Quality/Safety Committee (QSC) meeting until full compliance (100%) is achieved for 3 consecutive months, and will be reported at least quarterly to the Medical Executive Committee and the Board of Trustees.	Quality Director	9/8/17

Tag	Deficiency	Corrective Actions	Responsible Person	Completion Date
K 000	INITIAL COMMENTS A life safety survey was conducted by the state of Tennessee Health Department of Health, Division of health licensure and regulation office of health care facilities on 8/14/17. During this life safety survey, Tennova Healthcare North Knoxville Hospital was found not to be in substantial compliance with the requirements for participation in Medicare/Medicaid at 42 CFR Subpart 483.70(a), Life safety from fire, and the related National Fire Protection Association (NFPA) standard 101-2012 edition.			

120

Tag	Deficiency	Corrective Actions	Responsible Person	Completion Date
K 324	NFPA Cooking Facilities Cooking equipment is protected in accordance with NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, unless: *residential cooking equipment (i.e., small appliances such as microwaves, hot plates, toasters) are used for food warming or limited cooking in accordance with 18.3.2.5.2, 19.3.2.5.2 *cooking facilities in smoke compartments with 30 or fewer patients comply with the conditions under 18.3.2.5.3, or *cooking facilities in smoke compartments with 30 or fewer patients comply with conditions under 18.3.2.5.4, 19.3.2.5.4. Cooking facilities protected according to NFPA 96 per 9.2.3 are not required to be enclosed as hazardous areas, but	**K-324 Education to Kitchen Staff on responding to a grease fire (Facility C -NKMC)** A review of EC 02.03.01.9 Fire Response Plan was conducted with the Food and Nutrition Staff on 08/29/17 and found to be in compliance. Facilities team along with the Food and Nutrition Director will complete random question and answering utilizing the most current environmental touring document once a week times 3 months and quarterly thereafter. Additional fire drills will be performed randomly in the Food and Nutrition Department. Results of the query and fire drills will be presented to the Environment of Care Committee during the regularly scheduled meetings. Quarterly results will be presented to the Medical Executive Committee and Board of Trustees for 2 quarters. Ongoing training will be conducted upon new hire prior to operating the kitchen equipment, regularly scheduled meetings, and annually through the contractual obligations provided by Morrison's.	North Knoxville Facilities Team Leader and Facilities staff	8/29/2017 9/5/2017 9/5/2017 9/29/2017 9/5/2017

Tag	Deficiency	Corrective Actions	Responsible Person	Completion Date
	shall not be open to the corridor. 18.3.2.5.1 through 18.3.2.5.4, 19.3.2.5.1 through 19.3.2.5.5, 9.2.3, TIA 12-2			

Tag	Deficiency	Corrective Actions	Responsible Person	Completion Date
K 902	NFPA 101 Gas and Vacuum Piped Systems – Other List in the REMARKS section any NFPA 99 Chapter 5 Gas and Vacuum Systems requirements that are not addressed by the provided K-Tags, but are deficient. This information, along with the applicable Life Safety Code or NFPA standard citation, should be included on Form CMS-2567.	**K-902 Medical Gas Shut Off Valves (Facility C - NKMC)** Medical gas shut off valves were found to not have intervening walls that the valves service. A review of the annual medical gas inspection was conducted on 08/08/17. The results were annotated in the inspection report under a Level 2 code variance. A review of EC 02.05.09 1-5 Medical Gas and Vacuum System Policy was reviewed on 08/09/17. The Medical Gas Risk Assessment Form was completed on 08/28/17 and discussed during Safety Huddle on 08/29/17. The Facilities Team Leader obtained a proposal for the relocation of source valves. Installation and Purchase requisition was approved by administration on 09/05/17. Appropriate submittal along with state approval will be acquired prior to relocation. Facilities Team Leader or designee will audit the annual medical gas inspection and testing results on an annual basis and report the findings to the Environment of Care Committee. Quarterly results will be presented to the Medical Executive Committee and Board of Trustees for 2 quarters.	North Knoxville Facilities Team Leader and Facilities staff	8/08/2017 8/09/2017 8/28/2017 8/29/2017 9/05/2017 9/5/2017

Attachment B-Need-A.8

DPH Cardiac Cath Calculations for 11-County Service Area

Certificate of Need Cardiac Cath Calculations based on 2009 State Health Plan Standards

Data Sources: TDH Hospital Discharge Data System (HDDS), Joint Annual Reports (JARS)
Data Years: 2013-2015 (most recent years of finalized HDDS data), 2015 JARS

Methodology: Determine the three year Cardiac Cath weighted volume (diagnostic and therapeutic) performed by each Tennessee hospital in the service area by 13 age groups calculating a single year average. Include all patients seen, both Tennessee resident and non-resident. Include all occurrences of Cardiac Cath ICD-9 and ICD-10 Procedure Codes or CPT HCPCS codes with a Revenue Code 0481, Cardiology - Cardiac Cath Lab. Summarize cases based on the highest weighted code.

Cardiac Cath ICD-9, ICD-10 and CPT codes and categorizations determined with assistance from the Bureau of TennCare and the Tennessee Hospital Association. Note: ICD-10 coding began the fourth quarter of 2015.

The service area for the current application includes Anderson, Campbell, Claiborne, Cocke, Grainger, Hamblen, Jefferson, Knox, Scott, Sevier, and Union counties. Acute care hospitals found in this area (during the years 2013-2015) are Methodist Medical Center of Oak Ridge, Tennova Healthcare-LaFollette Medical Center, Jellico Community Hospital, Claiborne County Hospital, Tennova Healthcare-Newport Medical Center, Morristown-Hamblen Healthcare System, Lakeway Regional Hospital, Tennova Healthcare-Jefferson Memorial Hospital , Fort Sanders Regional Medical Center, Tennova Healthcare, University of Tennessee Memorial Hospital, East Tennessee Children's Hospital, Parkwest Medical Center, Tennova Healthcare-Turkey Creek Medical Center, Tennova Healthcare-North Knoxville Medical Center, Pioneer Community Hospital of Scott, and LeConte Medical Center.

Jellico Community Hospital (State ID 07252), Clairborne County Hospital (State ID 13202), East Tennessee Children's Hospital (State ID 47292) and Pioneer Community Hospital of Scott (State ID 76212) did not record any claims in the time period with Revenue Code 0481, Cardiology - Cardiac Cath Lab.

Methodist Medical Center of Oak Ridge (State ID 01202)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	4,316.0	4,296.0	0.0	20.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	23.0	21.0	0.0	2.0
30 - 39	123.0	123.0	0.0	0.0
40 - 44	179.0	179.0	0.0	0.0
45 - 49	290.0	290.0	0.0	0.0
50 - 54	437.0	433.0	0.0	4.0
55 - 59	551.0	551.0	0.0	0.0
60 - 64	598.0	598.0	0.0	0.0
65 - 69	715.0	709.0	0.0	6.0
70 - 74	551.0	545.0	0.0	6.0
75 - 79	438.0	438.0	0.0	0.0
80 - 84	266.0	264.0	0.0	2.0
85 +	145.0	145.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	3,187.0	430.0	2,385.0	372.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	11.0	2.0	9.0	0.0
30 - 39	92.0	4.0	84.0	4.0
40 - 44	162.0	10.0	144.0	8.0
45 - 49	189.0	24.0	153.0	12.0
50 - 54	324.0	30.0	270.0	24.0
55 - 59	411.0	72.0	303.0	36.0
60 - 64	389.0	62.0	291.0	36.0
65 - 69	501.0	82.0	351.0	68.0
70 - 74	396.0	54.0	258.0	84.0
75 - 79	363.0	38.0	273.0	52.0
80 - 84	207.0	32.0	135.0	40.0
85 +	142.0	20.0	114.0	8.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment

Tennova Healthcare - LaFollette Medical Center (State ID 07242)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	3.0	3.0	0.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	0.0	0.0	0.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	1.0	1.0	0.0	0.0
55 - 59	2.0	2.0	0.0	0.0
60 - 64	0.0	0.0	0.0	0.0
65 - 69	0.0	0.0	0.0	0.0
70 - 74	0.0	0.0	0.0	0.0
75 - 79	0.0	0.0	0.0	0.0
80 - 84	0.0	0.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	21.0	6.0	15.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	0.0	0.0	0.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	0.0	0.0	0.0	0.0
55 - 59	3.0	0.0	3.0	0.0
60 - 64	3.0	0.0	3.0	0.0
65 - 69	2.0	2.0	0.0	0.0
70 - 74	6.0	0.0	6.0	0.0
75 - 79	5.0	2.0	3.0	0.0
80 - 84	2.0	2.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Tennova Healthcare - Newport Medical Center (State ID 15222)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	0.0	0.0	0.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	0.0	0.0	0.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	0.0	0.0	0.0	0.0
55 - 59	0.0	0.0	0.0	0.0
60 - 64	0.0	0.0	0.0	0.0
65 - 69	0.0	0.0	0.0	0.0
70 - 74	0.0	0.0	0.0	0.0
75 - 79	0.0	0.0	0.0	0.0
80 - 84	0.0	0.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	6.0	6.0	0.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	0.0	0.0	0.0	0.0
40 - 44	2.0	2.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	0.0	0.0	0.0	0.0
55 - 59	0.0	0.0	0.0	0.0
60 - 64	0.0	0.0	0.0	0.0
65 - 69	0.0	0.0	0.0	0.0
70 - 74	2.0	2.0	0.0	0.0
75 - 79	0.0	0.0	0.0	0.0
80 - 84	2.0	2.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment

Morristown - Hamblen Healthcare System (State ID 32242)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	1,815.0	1,800.0	15.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	3.0	3.0	0.0	0.0
30 - 39	40.0	40.0	0.0	0.0
40 - 44	93.0	93.0	0.0	0.0
45 - 49	128.0	128.0	0.0	0.0
50 - 54	243.0	243.0	0.0	0.0
55 - 59	281.0	278.0	3.0	0.0
60 - 64	271.5	270.0	1.5	0.0
65 - 69	260.5	256.0	4.5	0.0
70 - 74	233.0	230.0	3.0	0.0
75 - 79	150.5	149.0	1.5	0.0
80 - 84	79.0	79.0	0.0	0.0
85 +	32.5	31.0	1.5	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	1,462.0	100.0	1,350.0	12.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	39.0	6.0	33.0	0.0
40 - 44	58.0	4.0	54.0	0.0
45 - 49	94.0	0.0	90.0	4.0
50 - 54	162.0	12.0	150.0	0.0
55 - 59	220.0	22.0	198.0	0.0
60 - 64	219.0	24.0	195.0	0.0
65 - 69	197.0	6.0	183.0	8.0
70 - 74	194.0	14.0	180.0	0.0
75 - 79	119.0	8.0	111.0	0.0
80 - 84	103.0	4.0	99.0	0.0
85 +	57.0	0.0	57.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Lakeway Regional Hospital (State ID 32252)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	34.5	33.0	1.5	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	1.0	1.0	0.0	0.0
30 - 39	2.5	1.0	1.5	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	3.0	3.0	0.0	0.0
50 - 54	5.0	5.0	0.0	0.0
55 - 59	2.0	2.0	0.0	0.0
60 - 64	5.0	5.0	0.0	0.0
65 - 69	2.0	2.0	0.0	0.0
70 - 74	10.0	10.0	0.0	0.0
75 - 79	3.0	3.0	0.0	0.0
80 - 84	1.0	1.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	6.0	0.0	6.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	0.0	0.0	0.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	0.0	0.0	0.0	0.0
55 - 59	0.0	0.0	0.0	0.0
60 - 64	0.0	0.0	0.0	0.0
65 - 69	3.0	0.0	3.0	0.0
70 - 74	0.0	0.0	0.0	0.0
75 - 79	3.0	0.0	3.0	0.0
80 - 84	0.0	0.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Tennova Healthcare - Jefferson Memorial Hospital (State ID 45242)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	32.0	32.0	0.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	1.0	1.0	0.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	2.0	2.0	0.0	0.0
55 - 59	4.0	4.0	0.0	0.0
60 - 64	4.0	4.0	0.0	0.0
65 - 69	6.0	6.0	0.0	0.0
70 - 74	4.0	4.0	0.0	0.0
75 - 79	2.0	2.0	0.0	0.0
80 - 84	5.0	5.0	0.0	0.0
85 +	4.0	4.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	127.0	88.0	39.0	0.0
0 - 17	8.0	8.0	0.0	0.0
18 - 29	7.0	4.0	3.0	0.0
30 - 39	10.0	10.0	0.0	0.0
40 - 44	12.0	6.0	6.0	0.0
45 - 49	2.0	2.0	0.0	0.0
50 - 54	13.0	10.0	3.0	0.0
55 - 59	6.0	6.0	0.0	0.0
60 - 64	11.0	8.0	3.0	0.0
65 - 69	14.0	8.0	6.0	0.0
70 - 74	8.0	2.0	6.0	0.0
75 - 79	15.0	6.0	9.0	0.0
80 - 84	12.0	12.0	0.0	0.0
85 +	9.0	6.0	3.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Fort Sanders Regional Medical Center (State ID 47212)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	3,368.0	3,308.0	54.0	6.0
0 - 17	2.0	2.0	0.0	0.0
18 - 29	13.0	13.0	0.0	0.0
30 - 39	61.0	61.0	0.0	0.0
40 - 44	116.5	115.0	1.5	0.0
45 - 49	224.5	223.0	1.5	0.0
50 - 54	327.0	327.0	0.0	0.0
55 - 59	431.0	420.0	9.0	2.0
60 - 64	462.5	455.0	7.5	0.0
65 - 69	574.0	563.0	9.0	2.0
70 - 74	455.0	443.0	12.0	0.0
75 - 79	357.0	351.0	6.0	0.0
80 - 84	217.0	212.0	3.0	2.0
85 +	127.5	123.0	4.5	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	2,868.0	444.0	2,316.0	108.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	9.0	0.0	9.0	0.0
30 - 39	35.0	2.0	33.0	0.0
40 - 44	122.0	14.0	108.0	0.0
45 - 49	203.0	32.0	171.0	0.0
50 - 54	294.0	26.0	252.0	16.0
55 - 59	389.0	38.0	339.0	12.0
60 - 64	375.0	62.0	297.0	16.0
65 - 69	442.0	88.0	342.0	12.0
70 - 74	343.0	52.0	279.0	12.0
75 - 79	307.0	64.0	231.0	12.0
80 - 84	203.0	34.0	153.0	16.0
85 +	146.0	32.0	102.0	12.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment

Tennova Healthcare (State ID 47242)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	3,716.0	3,529.0	39.0	148.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	20.0	16.0	0.0	4.0
30 - 39	118.0	111.0	3.0	4.0
40 - 44	191.5	181.0	4.5	6.0
45 - 49	319.5	318.0	1.5	0.0
50 - 54	422.5	404.0	4.5	14.0
55 - 59	508.5	485.0	1.5	22.0
60 - 64	457.0	438.0	3.0	16.0
65 - 69	540.5	520.0	4.5	16.0
70 - 74	446.0	413.0	9.0	24.0
75 - 79	362.0	330.0	6.0	26.0
80 - 84	216.5	199.0	1.5	16.0
85 +	114.0	114.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	5,372.0	564.0	4,152.0	656.0
0 - 17	4.0	4.0	0.0	0.0
18 - 29	25.0	6.0	15.0	4.0
30 - 39	150.0	20.0	102.0	28.0
40 - 44	216.0	26.0	174.0	16.0
45 - 49	440.0	34.0	390.0	16.0
50 - 54	575.0	48.0	483.0	44.0
55 - 59	701.0	96.0	549.0	56.0
60 - 64	687.0	68.0	555.0	64.0
65 - 69	798.0	74.0	612.0	112.0
70 - 74	678.0	72.0	498.0	108.0
75 - 79	556.0	62.0	366.0	128.0
80 - 84	304.0	28.0	216.0	60.0
85 +	238.0	26.0	192.0	20.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

University of Tennessee Memorial Hospital (State ID 47282)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	7,098.0	6,038.0	144.0	916.0
0 - 17	162.0	162.0	0.0	0.0
18 - 29	105.0	25.0	0.0	80.0
30 - 39	203.0	133.0	6.0	64.0
40 - 44	296.0	245.0	9.0	42.0
45 - 49	466.0	408.0	12.0	46.0
50 - 54	720.5	629.0	13.5	78.0
55 - 59	895.5	785.0	22.5	88.0
60 - 64	1,026.0	900.0	24.0	102.0
65 - 69	1,140.5	954.0	16.5	170.0
70 - 74	931.5	799.0	16.5	116.0
75 - 79	635.0	546.0	9.0	80.0
80 - 84	343.5	303.0	10.5	30.0
85 +	173.5	149.0	4.5	20.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	7,342.0	2,018.0	4,068.0	1,256.0
0 - 17	166.0	76.0	66.0	24.0
18 - 29	64.0	18.0	6.0	40.0
30 - 39	193.0	34.0	111.0	48.0
40 - 44	302.0	48.0	198.0	56.0
45 - 49	516.0	120.0	348.0	48.0
50 - 54	699.0	188.0	411.0	100.0
55 - 59	962.0	274.0	552.0	136.0
60 - 64	1,095.0	274.0	633.0	188.0
65 - 69	1,168.0	348.0	552.0	268.0
70 - 74	999.0	298.0	513.0	188.0
75 - 79	618.0	206.0	312.0	100.0
80 - 84	377.0	92.0	249.0	36.0
85 +	183.0	42.0	117.0	24.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment

Certificate of Need Cardiac Cath Calculations based on 2009 State Health Plan Standards

Parkwest Medical Center (State ID 47322)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	8,226.5	8,078.0	112.5	36.0
0 - 17	4.0	4.0	0.0	0.0
18 - 29	20.0	18.0	0.0	2.0
30 - 39	178.0	172.0	6.0	0.0
40 - 44	336.5	327.0	7.5	2.0
45 - 49	530.5	521.0	7.5	2.0
50 - 54	776.5	773.0	1.5	2.0
55 - 59	1,066.5	1,047.0	13.5	6.0
60 - 64	1,207.5	1,194.0	7.5	6.0
65 - 69	1,402.5	1,376.0	22.5	4.0
70 - 74	1,199.5	1,178.0	13.5	8.0
75 - 79	838.5	815.0	19.5	4.0
80 - 84	454.5	444.0	10.5	0.0
85 +	212.0	209.0	3.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	5,810.0	716.0	4,722.0	372.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	10.0	0.0	6.0	4.0
30 - 39	97.0	12.0	81.0	4.0
40 - 44	251.0	22.0	225.0	4.0
45 - 49	348.0	38.0	306.0	4.0
50 - 54	587.0	50.0	471.0	16.0
55 - 59	760.0	108.0	624.0	28.0
60 - 64	785.0	108.0	621.0	56.0
65 - 69	960.0	100.0	792.0	68.0
70 - 74	830.0	98.0	660.0	72.0
75 - 79	621.0	88.0	465.0	68.0
80 - 84	394.0	56.0	306.0	32.0
85 +	217.0	36.0	165.0	16.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Tennoval Healthcare Turkey Creek Medical Center (State ID 47332)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	1,567.0	1,355.0	24.0	188.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	8.0	4.0	0.0	4.0
30 - 39	25.0	21.0	0.0	4.0
40 - 44	60.5	53.0	1.5	6.0
45 - 49	107.5	98.0	1.5	8.0
50 - 54	147.5	135.0	4.5	8.0
55 - 59	194.0	168.0	6.0	20.0
60 - 64	217.5	181.0	4.5	32.0
65 - 69	235.0	217.0	0.0	18.0
70 - 74	211.0	171.0	0.0	40.0
75 - 79	173.0	137.0	6.0	30.0
80 - 84	127.0	111.0	0.0	16.0
85 +	61.0	59.0	0.0	2.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	2,160.0	306.0	1,494.0	360.0
0 - 17	10.0	4.0	6.0	0.0
18 - 29	13.0	2.0	3.0	8.0
30 - 39	37.0	6.0	27.0	4.0
40 - 44	69.0	6.0	51.0	12.0
45 - 49	123.0	16.0	87.0	20.0
50 - 54	181.0	22.0	123.0	36.0
55 - 59	249.0	34.0	171.0	44.0
60 - 64	318.0	50.0	240.0	28.0
65 - 69	304.0	36.0	216.0	52.0
70 - 74	301.0	42.0	207.0	52.0
75 - 79	261.0	54.0	159.0	48.0
80 - 84	179.0	28.0	123.0	28.0
85 +	115.0	6.0	81.0	28.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment

Certificate of Need Cardiac Cath Calculations based on 2009 State Health Plan Standards

Tennova Healthcare North Knoxville Medical Center (State ID 47352)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	39.0	39.0	0.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	1.0	1.0	0.0	0.0
30 - 39	3.0	3.0	0.0	0.0
40 - 44	2.0	2.0	0.0	0.0
45 - 49	2.0	2.0	0.0	0.0
50 - 54	5.0	5.0	0.0	0.0
55 - 59	3.0	3.0	0.0	0.0
60 - 64	6.0	6.0	0.0	0.0
65 - 69	9.0	9.0	0.0	0.0
70 - 74	5.0	5.0	0.0	0.0
75 - 79	1.0	1.0	0.0	0.0
80 - 84	1.0	1.0	0.0	0.0
85 +	1.0	1.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	102.0	62.0	36.0	4.0
0 - 17	4.0	4.0	0.0	0.0
18 - 29	4.0	4.0	0.0	0.0
30 - 39	5.0	2.0	3.0	0.0
40 - 44	3.0	0.0	3.0	0.0
45 - 49	5.0	2.0	3.0	0.0
50 - 54	10.0	6.0	0.0	4.0
55 - 59	16.0	10.0	6.0	0.0
60 - 64	17.0	8.0	9.0	0.0
65 - 69	14.0	8.0	6.0	0.0
70 - 74	10.0	4.0	6.0	0.0
75 - 79	10.0	10.0	0.0	0.0
80 - 84	4.0	4.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

LeConte Medical Center (State ID 78232)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	437.5	427.0	10.5	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	9.0	9.0	0.0	0.0
40 - 44	16.0	16.0	0.0	0.0
45 - 49	39.0	39.0	0.0	0.0
50 - 54	35.5	34.0	1.5	0.0
55 - 59	63.5	62.0	1.5	0.0
60 - 64	57.0	54.0	3.0	0.0
65 - 69	71.0	68.0	3.0	0.0
70 - 74	61.0	61.0	0.0	0.0
75 - 79	49.5	48.0	1.5	0.0
80 - 84	24.0	24.0	0.0	0.0
85 +	12.0	12.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	11.0	2.0	9.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	3.0	0.0	3.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	0.0	0.0	0.0	0.0
55 - 59	3.0	0.0	3.0	0.0
60 - 64	0.0	0.0	0.0	0.0
65 - 69	2.0	2.0	0.0	0.0
70 - 74	3.0	0.0	3.0	0.0
75 - 79	0.0	0.0	0.0	0.0
80 - 84	0.0	0.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment

Certificate of Need Cardiac Cath Calculations based on 2009 State Health Plan Standards

From the 2015 Joint Annual Reports (JAR) of Hospitals there are 24 Cardiac Cath labs in operation in the service area:

Methodist Medical Center of Oak Ridge – 2 labs
Morristown-Hamblen Healthcare System – 2 labs
Fort Sanders Regional Medical Center – 4 labs
Tennova Healthcare – 3 labs
University of Tennessee Memorial Hospital – 5 labs
Parkwest Medical Center – 5 labs
Tennova Healthcare-Turkey Creek Medical Center – 1 lab
Tennova Healthcare-North Knoxville Medical Center – 1 lab
LeConte Medical Center – 1 lab

Service Area Hospital	Diagnostic Cardiac Caths	Therapeutic Cardiac Caths	Total Cardiac Caths
Methodist Medical Center of Oak Ridge (State ID 01202)	4,316.0	3,187.0	7,503.0
Tennova Healthcare - LaFollette Medical Center (State ID 07242)	3.0	21.0	24.0
Tennova Healthcare - Newport Medical Center (State ID 15222)	0.0	6.0	6.0
Morristown - Hamblen Healthcare System (State ID 32242)	1,815.0	1,462.0	3,277.0
Lakeway Regional Hospital (State ID 32252)	34.5	6.0	40.5
Tennova Healthcare - Jefferson Memorial Hospital (State ID 45242)	32.0	127.0	159.0
Fort Sander Regional Medical Center (State ID 47212)	3,368.0	2,868.0	6,236.0
Tennova Healthcare (State ID 47242)	3,716.0	5,372.0	9,088.0
University of Tennessee Memorial Hospital (State ID 47282)	7,098.0	7,342.0	14,440.0
Parkwest Medical Center (State ID 47322)	8,226.5	5,810.0	14,036.5
Tennova Healthcare Turkey Creek Medical Center (State ID 47332)	1,567.0	2,160.0	3,727.0
Tennova Healthcare North Knoxville Medical Center (State ID 47352)	39.0	102.0	141.0
LeConte Medical Center (State ID 78232)	437.5	11.0	448.5
Totals	30,652.5	28,474.0	59,126.5

# of Caridac Cath Labs in Service Area (JAR)	24
Capacity per Lab (defined by standards)	2,000
Total Capacity in Service Area	48,000
Percent of Existing Services to Capacity	123.2%

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment

Attachment B-Need-A.16

Physicians' Curriculum Vitae

YASIR NAEEM AKHTAR

1051 Glenwood Station Lane, Unit 101
Charlottesville, VA 22901
Phone # 317-341-0297
Email: yasirakhtar@virginia.edu

PERSONAL DATA

Birthplace: - Gloversville, N.Y.
Nationality: - U.S
Languages: - English, Urdu

EDUCATION/TRAINING

2013-2014

University of Virginia, Interventional Cardiology Fellowship

2009- 2013

University of Virginia, Department of Cardiology, Fellowship Program
Vascular Biology Research Training Grant, NIH T32, HL07355
"Consultant of the Year" award from the ER - 2012

2004- 2007

Indiana University, Department of Medicine, Internal Medicine Categorical Residency Program

Nomination for Resident's Choice Award for Outstanding PGY-1

1997-2002

The Aga Khan University Medical College, Karachi, Pakistan
M.B., B.S.(Bachelors in Medicine , Bachelors in Surgery)

1994-1996

Government College, Multan, Pakistan
Higher Secondary School Certificate Examination

CERTIFICATIONS

American Board of Cardiology
Certified 2013 to 2023

Medical Licensure
State of Virginia – 2009 to 2014

American Board of Internal Medicine
Certified 2007 to 2017

ECFMG Certification
TOEFL – 273 Passed, May 20, 2003
Step 1 – 253 (99th Percentile) Passed, May 7th, 2003
Step 2 – 223 (90th Percentile) Passed, September, 2003
CSA (Clinical Skills Assessment) – Passed, October, 15, 2003
Step 3 – 205 (84th Percentile) Passed, February 27, 2006

ACLS/BLS
June 2012 to 2014

Indiana University Protection of Human Research Participants
Certification Test passed in May 2007

Investigator 101
Certification Test passed in June 2008

WORK EXPERIENCE

Research Assistant
Rehman Lab, Division of Cardiology, University of Chicago
Nov 2008 to June 2009
Supervisor: Jalees Rehman, M.D

Physician
EHE International
Chicago, IL
Nov. 2008 to June 2009

Assistant Professor of Clinical Medicine
Indiana University, Department of Medicine
Indiana University Medical Group, Hospitalist, Wishard Memorial Hospital
July 2007 to November 2008

Medical Officer
Heart Care, Abdullah Medical Center, Multan, Pakistan
October 2002 to June 2004

RESEARCH POSTERS

- **Genetic Ablation of Cyclophilin D, a component of the mitochondrial permeability transition pore, improves insulin sensitivity in high-fat fed mice**
  Yasir N Akhtar, Vitor A Lira, Mitsuhara Okutsa, Mei Zhang, Nicohlas P Greene, Kyle L Hoehn, Zhen Yan
  Outstanding Poster Award, Virginia Chapter American College of Cardiology Annual Meeting, Dec. 2010.

- **The Cytokine Tumor Necrosis Factor-Alpha Acutely Decreases**

Mitochondrial Oxygen Consumption in Human Endothelial Cells
***Yasir Akhtar**, Yanmin Zhang, Peter T. Toth, Glenn Marsboom, Stephen L. Archer and Jalees Rehman*
Poster Presentation - Cardiovascular Research Day , June 5 , 2009
University of Chicago

- **Clinical Predictors of Adverse Outcomes in Patients Implanted with Left Ventricular Assist Devices for Bridge to Transplant**
Akhtar YN, Ghumman W, Mahenthiran J
5th Place – 2006 Indiana ACP Chapter's Associates Abstract Competition for Research. Nov. 17th 2006

- **Cholera's Heavy Toll in Infants and Young Children: A Study in the Developing World**
*Fahd Chaudhry, **Yasir Akhtar**, Abdul Gaffar Billoo*
Oral Presentation at the 12th European Students Conference, Berlin, Germany. November 2001

- **Hydatid Cyst of the Lung: Clinical Presentation and Outcome**
***Akhtar YN**, Jan A,Khokhar AS, Bangash M A, S Fatimi*
Oral Presentation at the 12th European Students Conference, Berlin
Poster Presentation at the Royal Society for Tropical Medicine and Hygiene in London, 2001
Poster Presentation at the 10th International Congress of Infectious Diseases in Singapore, March 2002.

- **Suicidal Ideation in Medical Students: A Study in a Private Medical College in Karachi**
*Akram S, Ahmad A, Ahmad S, Ahmad M, **Akhtar Y***
Poster presentation at the 12th European Students Conference, Berlin, Germany. Oct 2002

RESEARCH PUBLICATION

- **Opening of the Mitochondrial Permeability Transition Pore is Required for Insulin Resistance in Skeletal Muscle**
*Taddeo EP, Laker RC, Breen DS, **Akhtar YN**, Kenwood BM, Liao JA, Zhang M, Fazaklrly DJ, Tomsig JL, Harris TE, Keller SR, Chow JD, Lynch KR, Chokki M, Molkentin JD, Turner N, James DE, Yan Z, Hoehn KL*
Molecular Metabolism, Available online 26 Novemeber 2013,
ISSN 2212-8778,
http://www.sciencedirect.com/science/article/pii/S221287781300121X

- **Regulation of exercise-induced fiber type transformation, mitochondrial biogenesis, and angiogenesis in skeletal muscle**
*Yan Z, Okutsu M, **Akhtar YN**, Lira VA*

J Appl Physio. 2010 Oct 28. PMID: 21030673

- **Autophagy in Skeletal Muscle is Required for Exercise Training-Induced Improvement in Glucose Tolerance**
  Lira, Vitor A.; Okutsu, Mitsuharu; ***Akhtar, Yasir*** *N.; Zhang, Mei; Yan, Zhen*
  Medicine & Science in Sports & Exercise : October 2010 – Vol.42 – Issue 10- p8 . doi: 10.1240/01.MSS.0000389410.73450.71

- **Genetic Ablation of Cyclophilin D, a component of the mitochondrial permeability transition pore, improves insulin sensitivity in high-fat fed mice**
  Yasir N Akhtar*, Vitor A Lira, Mitsuhara Okutsa, Mei Zhang, Kyle L Hoehn, Zhen Yan*
  FASEB J. 2010 24:lb626

- **Obtaining Femoral Access using Fluroscopic Guidance Reduces Sheath Variability**
  Yasir Akhtar, *Venayak Belamkar, Patrick Bourdillon*
  Catheter Cardiovasc Interv. 2009 Jun 1;73 Suppl 1:S86-87

- **Echocardiography vs. Right Heart Catherization in Detecting of Pulmonary Hypertension in Patients with Aortic Stenosis**
  Yasir Akhtar, *Elizabeth von der Lohe ,*
  Catheter Cardiovasc Interv. 2009 Jun 1;73 Suppl 1:S24-25

- **Paediatric stool cultures: seasonal variation in bacterial pathogens isolated in Karachi, Pakistan.**
  Alam M, Ahmed M, Ali SS, Atiq M, **Akhtar YN**, Ansari A
  Trop Doct. 2005 Jan; 35(1): 21-3

- **Seasonal variation in bacterial pathogens isolated from stool samples in Karachi, Pakistan.**
  Alam M, **Akhtar YN**, Ali SS, Ahmed M, Atiq M, Ansari A, Chaudhry FA, Bashir H, Bangash MA, Awais A, Safdar A, Hasnain SF, Zafar A
  Journal of Pakistan Medical Association (JPMA), 2003 Mar; 53(3): 125-9

EXTRACURRICULAR ACTIVITIES

- **ACS Quality Support Team (2013-On going)**

- **Cath/PCI Quality Support Team (2013-On going)**

- **Hostel Representative (2000-2001)**
  The Aga Khan University, Karachi

- **Sports Representative (2001-2002)**
  The Aga Khan University, Karachi
- **International Medical Graduate Committee Member**
  (2005-2007) Resident Member
  (2007- 2008) Faculty Advisor
  Indiana University, Department of Medicine

ELECTIVE/VOLUNTEER WORK

- **PLOS ONE Journal –Reviewer**
  2013- On going

- **Volunteer Chaplain**
  Albermarle County Prison
  Dec 2011 – On going

- **Charlottesville Free Clinic, Charlottesville, VA**
  Medical Director/Physician Volunteer
  Sept 2009 – Ongoing

- **Islamic Society of Central Virginia**
  Board Member/Activity Co-ordinator
  July 2012 - Ongoing

- **Remote Access Medicine , Physician Volunteer**
  Medical Mission to Wise County, VA
  June 2012

- **Community Health Clinic, Chicago, IL**
  Physician Volunteer, Internal Medicine
  Nov. 2008 to June 2009

- **Research Assistant: Rehman Lab, Krannert Institute of Cardiology, Indiana University** June 2007 to December 2007
  Supervisor: Jalees Rehman , M.D

- **Medical Officer** , Heart Care, Abdullah Medical Center, Multan, Pakistan October 2002 to June 2004

- **Sub internship: Cardiology Consult Service at UCLA-Harbor Medical Center,** Torrance, CA in March 2002.
  Supervisor: Dr. John Michael Criley

- **Sub internship: Pediatric ICU of Hasbro's Children's Hospital (Brown University School of Medicine),** Providence, RI in April 2002
  Supervisor: Dr. Leslie Doughty

- **Sub internship: Cardiology at the Ruby Memorial Hospital (West Virginia University),** Morgantown, WV in May 2002
  Supervisor: Dr. Wissam Gharib

HOBBIES AND INTERESTS

- **Member of the Montebello Cricket Club (MBCC)**
- **Swimming: 3rd Place in 50 m. Freestyle and 3rd Place in 150 m. Medley at 2002 Aga Khan University Swimming Gala**
- **Soccer: Goalkeeper of Aga Khan University Soccer Team 2000-2001**
- **Cricket: Bowler for the Aga Khan University Cricket Team 2000-2001**

PROFESSIONAL SOCIETIES

- **ACC FIT Member (American College of Cardiology)**

ADDRESS – 1320 W SOMERVILLE AVE, APT 7140 PHILADELPHIA PA 19141
CELL – 520 225 9182 • EMAIL – FAHDCH@GMAIL.COM

FAHD A. CHAUDHRY, MD

CURRICULUM VITAE

REVISED: 5/12/2015

WORK EXPERIENCE/ACTIVITIES

July 2014 – June 2016	2 year combined Interventional Cardiology and Peripheral/Structural Fellowship	
	Albert Einstein Medical Center	Philadelphia, PA
July 2011 – July 2014	Cardiology Fellowship	Morgantown, WV
	West Virginia University	
Aug 2007 – Jul 2011	University Physicians Healthcare/University Medical Center/Arizona Health Sciences Center	Tucson, AZ
	Assistant Professor (Clinical) – Internal Medicine	
Aug 2004 – Aug 2007	Residency, Internal Medicine	Houston, Texas
	University of Texas Health Sciences Center	
March 2004 – July 2004	Internship in Surgical Oncology	Lahore, Pakistan
	Shaukat Khanum Memorial Trust Cancer Hospital	

EDUCATION

Sep 09 – May 11	Master of Science, Biomedical Engineering University of Arizona *Thesis: A Novel CPR Algorithm in Swine*		Tucson, AZ
Jan 2004	ECFMG Certification		
	Step 1: 99 (268) *April 2003*	*Step 2: 99 (260)* *Sep 2003*	*Step 3 93: (229)* *Feb 2004*
Oct 1997 – Oct 2002	The Aga Khan University *MD: High honors in biochemistry and honors in physiology, pharmacology, ENT Head and neck surgery, Obstetrics and Gynecology, Surgery*		Karachi, Pakistan
Sep 1995 – Sep 1997	Government College *HSSC (Higher Secondary School Certificate)*		Lahore, Pakistan
June 1986 – June 1995	Beaconhouse Public School *GCE O Level (University of Cambridge, UK)*		Lahore, Pakistan

1. The Ventricular Fibrillation Waveform Approach to Direct Postshock Chest Compressions in a Swine Model of VF Arrest. McGovern M, Allen D, **Chaudhry F**, Conover Z, Hilwig R, Indik JH. J Emerg Med. 2015 Mar;48(3):373-81. doi: 10.1016/j.jemermed.2014.09.057. Epub 2014 Dec 6.

2. Effect of smoking on age at the time of Coronary Artery Bypass Graft Surgery: Baseline data results from the ROSETTA-CABG registry. Chaudhry MR, **Chaudhry FA**, Huynh T, Lader E, Rashid S, Okrainec K, Wou K, Eisenberg M. Heart Asia 2010 Vol: 2(1):48-51. DOI: 10.1136/ha.2009.001586

3. Pediatric stool cultures: seasonal variation in bacterial pathogens isolated in Karachi, Pakistan. Alam M, Ahmed M, Ali SS, Atiq M, Akhtar YN, Ansari A, **Chaudhry FA**, Bashir H, Farid-ul-Husnain S, Zafar A. Tropical Doctor. 2005 Jan;35(1):21-3 PMID 15712537

4. An investigation into the cardiovascular health of senior civil servants. Chaudhry MR, Rehman SU, **Chaudhry FA**. Pakistan Heart Journal Dec 2002;35(1-4):7-10 http://www.pakmedinet.com/6190

5. Primary prevention of coronary artery disease (review article). Chaudhry MR, **Chaudhry FA**. Pakistan Heart Journal Dec 2002;35(1-4):26-36. http://www.pakmedinet.com/6186

6. An electrocardiographic study of working people. **Chaudhry FA**, Chaudhry MR. The Professional, Vol 11 No. 4 Oct - Dec 2004;11(4):386-8 http://www.pakmedinet.com/14213

7. Seasonal variation in bacterial pathogens isolated from stool samples in Karachi, Pakistan. Alam M, Akhtar YN, Ali SS, Ahmed M, Atiq M, Ansari A, **Chaudhry FA**, Bashir H, Bangash MA, Awais A, Safdar A, Hasnain SF, Zafar A. Journal of the Pakistan Medical Association 2003 March;53(3):125-9 PMID 12779031

PEER REVIEWED ABSTRACTS AND PRESENTATIONS

1. Can a return of spontaneous circulation be achieved faster in a resuscitation algorithm that directs the duration of post-shock chest compressions according to the pre-shock value of the amplitude-spectral area? A study of VF cardiac arrest in normal swine – McGovern M, Allen D, **Chaudhry F**, Hilwig R, Kern K, Indik JH.
1st prize, West Virginia chapter of the American College of Cardiology meeting, Nov 2012

2. Reappraisal Of The Evaluation Of Chest Pain In The Emergency Room - A Modern Cost Analysis Just In Time For Health Care Reform. **Chaudhry FA**, Ilyas F, Rashid S, Sorrell V http://content.onlinejacc.org/cgi/reprint/55/10_MeetingAbstracts/A131.E1232.pdf
Poster presented at the annual meeting of the American College of Cardiology (ACC) 2010, Atlanta, GA

3. Impact of Obesity on Cardiac Stress Testing. **Chaudhry FA**, Ilyas F, Rashid S, Sorrell VL, Chaudhry MR. Abstract published in: Cardiovascular Revascularization Medicine July 2010 11(3):201-202
Poster presented at Cardiovascular Research Technologies (CRT) 2010; Washington, DC

4. Multivessel coronary artery disease is common in hypertensive patients. Hakeem F, **Chaudhry FA**, Chaudhry MR
Poster presented at Cardiovascular Research Technologies (CRT) 2009, Washington DC

5. Smokers are referred for coronary artery bypass graft surgery at a younger age than nonsmokers: results from The ROSETTA-CABG Registry. Chaudhry MR, **Chaudhry FA**,

Eisenberg M, Nguyen H, Duerr R, Del Gatto M, Fourchy D, et al. Abstract published in: Cardiovascular Revascularization Medicine July 2008 9(3):206
Poster presented at CRTonline 2008, Washington DC, Feb 2008

6. Cholera's heavy toll in infants and young children: a study in the developing world. **Chaudhry FA**, Akhtar YN, Billoo AG
Poster presented at 12th European Students' Conference, Berlin, Germany in Nov 2001

AWARDS RECEIVED

Nov 2012	1st Prize, Poster competition, West Virginia Chapter of the American College of Cardiology meeting
May 2012	2nd place, Echo jeopardy, Cardiovascular Medicine Update 2012, Allegheny Health Network
Sep 2002	Begum Shafiqa Ziaul Haq Scholarship for academic excellence Honors Call in Surgery
Aug 2001	Begum Shafiqa Ziaul Haq Scholarship, Dr Shaukat Haroon Scholarship for academic excellence Honours Call in Obstetrics and Gynaecology, Honours Call in ENT and Head and Neck Surgery – 3rd Professional Examination
Nov 1999	Honours in Biochemistry – 1st Professional Examination
June 1995	Gold Medalist – GCE O Level Exam (8 A grades)

INTERESTS AND ACTIVITIES

Tennis, soccer, hiking, travel.

Language fluencies: English, Urdu, Hindi, basic Spanish

Osareme Anthony Irivbogbe, M.D

21 Tynes Ln., Huntington. WV 25705. Phone: 646-756-0934. E-mail:osaremeirivbogbe@gmail.com

RESIDENCY & TRAINING:

July 2015—June 2016	**Fellow in training, Interventional Cardiology** Marshall University *Huntington, WV.*
July 2012-- June 2015	**General Adult Cardiology Training** **Chief Fellow.** Marshall University *Huntington, WV.*
July 2004 – June 2007	**Resident, Internal Medicine** Woodhull Medical and Mental Health Center *Brooklyn, NY.*

ACHIEVEMENTS:

July 2004 – June 2005	**Outstanding Intern of the year** Woodhull Medical and Mental Health Center
July 2006-- June 2007	**Outstanding Third year Resident of the year** Woodhull Medical and Mental Health Center
July 2006 – June2007	**Assistant Chief Resident** Woodhull Medical and Mental Health Center
July 2014--June 2015.	**Chief Fellow** **Marshall University**

WORK EXPERIENCE:

Nov.2007 – June 2012	**General Internist** Desert Oasis Medical Center *Laughlin, Nevada.*
Jan. 2010—June 2012	**Medical Director** Hospice Compassus *Bullhead City, Arizona.*
Mar.2010—June 2012	**Chairman Pharmaceuticals &Therapeutics Committee** Valley View Medical Center *Fort Mohave, Arizona.*
Jan. 2012—June2012	**Chairman Credentialing Committee** Western Arizona Medical Center *Bullhead City, Arizona.*
Feb. 2001 – June2012	**House Officer** County Hospital

Sangre Grande, Trinidad

Aug. 1998 –Sep.1999	**Medical Officer** Nigeria Airways Limited *Lagos, Nigeria*
Sept. 1997 – Aug. 1998	**House Officer** General Hospital Lagos Island *Lagos, Nigeria*

EDUCATION:

1989 – 1996	**M.B.B.S., Bachelor of Medicine, Bachelor of Surgery** University of Benin *Benin City, Edo State, Nigeria*

LICENSURE & CERTIFICATION:

June 1998	USMLE, Step 1
Dec. 2001	USMLE, Step 2
May 2003	USMLE, Step 3
Oct. 2007	American Board of Internal Medicine Certification
Nov.2007	Nevada State Medical Board Licensure
July 2007	Arizona Medical Board Licensure
Sept.2014	National Board of Echocardiography (Special competence in Adult Echocardiography)
May 2015	Georgia Composite Medical Board

PERSONAL:

Gender:	Male
Date of Birth:	June 02 1973
Marital Status:	Married
Hobbies:	Music, outdoor sports, reading, travelling with my family.

Excellent References Available Upon Request

Bassem Abazid
10034 Willow Brook Circle
Louisville, KY 40223
(901) 484-7629
babazid01@gmail.com

EDUCATION

07/2012- Present	University of Louisville School of Medicine Cardiology Fellowship Program. Program Director: Glenn A. Hirsch, MD. Chief of Division of Cardiology: Roberto Bolli, MD. Anticipated graduation date is 07/2015.
08/2011- 06/2012	University of Alabama at Birmingham University Hospital Hospitalist: Medical Director James Lyman, MD.
06/2008- 07/2011	University of Alabama at Birmingham School of Medicine Internal Medicine Residency Program. Program Director: Gustavo R. Heudebert, MD. Chairman: Edward Abraham, MD.
08/2004- 06/2008	University of Tennessee Health Science Center College of Medicine MD.
01/2002- 05/2004	University of Tennessee at Chattanooga BS. Chemistry, *magna cum laude.*
08/1999- 12/2001	Chattanooga State T.C.C

CERTIFICATIOS

12/2009	USMLE Step 3
02/2008	USMLE Step 2 CS
11/2007	USMLE Step 2 CK
05/2006	USMLE Step 1
08/2011	The American Board of Internal Medicine
03/2012	Kentucky Medical License, Number 45167
12/2014	Nuclear Cardiology board Anticipated Echocardiography board in July 2015 Anticipated General Cardiology Board in October 2015

RESEARCH

2013- 2014	**First Author.** Bassem A. Abazid, *Outcomes with implantable cardioverter-defibrillator (ICD) therapy and/or improved left ventricular ejection fraction during the lifetime of the index device: a retrospective review.* An original Research Article, by Abazid, Haney and Gopinathannair, that evaluate the outcome and long-term benefit of

implantable cardioverter-defibrillator (ICDs) in veterans who undergo elective ICD generator replacement who never received an appropriate ICD therapy during the lifetime of the index device and/or whose left ventricular ejection fraction has improved to > 35% at the time of device replacement.

2009- 2010 **First Auther.**
Bassem A. Abazid, Quantification of Pulmonary/Systemic Shunt Ratio by Single-Acquisition Phase-Contrast Cardiovascular Magnetic Resonance. An original Research Article, by Abazid, Nagaraj, Desai, Misra, Gupta and Lloyd, that evaluate a novel cardiovascular MRI technique to measure intracardiac shunting, Qp/Qs ratio, using a modified "single-acquisition" plane (as opposed to the standard method of comparing Qp and Qs separately).

PROFESSIONAL AFFILIATIONS

2007- Present	American Heart Association (AHA).
2010- Present	American College of Physicians (ACP).
2012- Present	American College of Cardiology (ACC)

PERSONAL

Fluent in Arabic language.

R. ERIC DICKENSON, PA-C

CURRICULUM VITAE

PERSONAL DATA

Business Address: Knoxville HMA Cardiology, PPM, LLC
900 E. Oak Hill Ave.
Central Annex, Ste. 500
Knoxville, Tennessee 37917
(865) 525-6688

EDUCATION

1984	B.S., Biology/Premed Minor, Religious Studies Virginia Commonwealth University Richmond, Virginia
1986	B.S. Physician Assistant Trevecca Nazarene College Nashville, Tennessee

CERTIFICATION

1986-Present	NCCPA, National Commission on Certification of Physician Assistants, Inc.

FACULTY APPOINTMENTS

1998-1999	Clinical Faculty Appointment, Clinical Instructor, Physician Assistant Department Trevecca Nazarene University Nashville, Tennessee

LICENSURE

Tennessee – Active
Kentucky – Inactive

HONORS AND ACTIVITIES

1980-1982	American Chemical Society Member
1982-1984	Phi Sigma National Honorary Biological Society Member
1985	Trevecca Nazarene College Deans List, Two Quarters
1985	National Deans List Member
1986	Outstanding Young Man of America Nomination

CURRENT STATUS

May 2010 - Present

Knoxville HMA Cardiology, PPM, LLC
Knoxville, Tennessee
Cardiology and Electrophysiology
Duties Include:
- Treadmill Stress Testing
- AEM Interpretation
- Pacemaker Follow-up Clinics
- Amiodarone Clinic
- Lipid Clinic
- Office and Hospital Admissions
- Hospital Rounds

HOSPITAL AFFILIATIONS

Claiborne County Hospital
Fort Sanders Regional Medical Center
Jefferson Memorial Hospital
Newport Medical Center
North Knoxville Medical Center
Parkwest Medical Center
Physician Regional Medical Center
Select Specialty Hospital at Physician Regional Medical Center
Turkey Creek Medical Center

Curriculum Vitae

Rashmi U. Hottigoudar, MD

Current Position

Clinical Cardiac Electrophysiologist
Heart and Vascular Center of West Tennessee
17 Centre Plaza Drive
Jackson, TN-38305

Home Address

19 Redwood Cove,
Jackson, TN-38305

Email

hottigoudar@gmail.com

Telephone

(502) 810-4813 (cell)

(502) 632-2557 (home)

Education

Graduate

1996-2003 **Mysore Medical College**
Rajiv Gandhi University of Health Sciences
Karnataka, India
Bachelor of Medicine and Bachelor of Surgery, M.B.B.S.

Undergraduate

1994-1996 **Sarvodaya Pre-University college**
Karnataka, India
Science (P.C.M.B)

Post Graduate Training

2011- 2013	**University of Louisville School of Medicine** *Louisville, Kentucky* ***Fellowship, Division of Clinical Cardiac Electrophysiology*** Chairman: Roberto Bolli, M.D. Program Director: Allen Gregory Deam, M.D
2009- 2012	**University of Louisville School of Medicine** *Louisville, Kentucky* ***Fellowship, Division of Cardiovascular Medicine*** Chairman: Roberto Bolli, M.D. Program Director: Stephen Wagner, M.D
2008-2009	**SUNY Upstate Medical University** *Syracuse, NY* ***Chief Resident, Department of Internal Medicine*** Chairman: Michael Iannuzzi, M.D., M.B.A Program Director: Stephen Knohl , M.D.
2005-2008	**SUNY Upstate Medical University** *Syracuse, NY* ***Residency, Department of Internal Medicine*** Chairman: David Duggan, M.D. Program Director: Vincent Frechette , M.D.

Work Experience

02 / 2004 – 01 / 2005	**Montgomery Family Medicine Associates** Silver Spring, MD-20904 Medical Assistant
09 / 2013 – Present	**Heart and Vascular Center of West Tennessee** Jackson, TN-38305 Clinical Cardiac Electrophysiologist

Volunteer Experience

12 / 2003 – 01 / 2004	**Montgomery Family Medicine Associates** Silver Spring, MD-20904.

05/ 2000 – 08 / 2002	**Swami Vivekananda Youth Movement (SVYM)** Karnataka, India.
01 / 1997 – 04 / 2000	**Community Health Care Programs** **Mysore Medical College** Karnataka, India.
06 / 1994 – 03 / 1996	**National Cadet Corps (NCC)** Karnataka, India.

Professional

Licensure

7/2013-Present	Tennessee # 50444 (Active)
3/2009-2/2014	Kentucky # 42569 (Inactive)
8/2008- 6/2009	Indiana # 01065706A (Expired)
7/2008 -Present	NPI # 1093978751

Certification

12 / 2004	ECFMG Certified (ID: 0-656-355-5)
08 / 2008	*American Board of Internal Medicine* Internal Medicine *(Expires- 12/31/2018; Number: 289087)*
11/2013	*American Board of Internal Medicine* Cardiovascular Medicine (*Expires- 12/31/2023; Number: 289087)*
Board Eligible 2013	*American Board of Internal Medicine* Clinical Cardiac Electrophysiology

Awards

2008	**Outstanding Outpatient Care Resident Award** SUNY Upstate Medical University & VA Medical Center *Syracuse, NY*
2007	**Outstanding Outpatient Care Resident Award** SUNY Upstate Medical University *Syracuse, NY*

2006 **Excellence in Student Teaching Award**
SUNY Upstate Medical University
Syracuse, NY

2002 **Academic Excellence Award**
Mysore Obstetrics and Gynecological Society
Karnataka, India

1998 **Distinguished Honor Role in State level Medical Preclinical Sciences : Ranked 9th**
Rajiv Gandhi University of Health Sciences
Karnataka, India

1996 **Distinguished Honor Role in State level Pre-university Science course : Ranked 3th**
Government of Karnataka
Karnataka, India

Memberships

American Heart Association
American College of Cardiology
Heart Rhythm Society

Research

Clinical

2011-2013 **University of Louisville**
"Study of cardiac resynchronization therapy defibrillators (CRT-D) vs implantable cardioverter defibrillators(ICD) in patients with left ventricular assist device"
Mentor: Rakesh Gopinathannair, MD,MA

2007 -2009 **SUNY Upstate Medical University**
"Vascular function and resting hemodynamic changes after aerobic exercise training in women with pre stage 1 essential hypertension"
Mentor: Scott Collier, PhD

2007-2008 **SUNY Upstate Medical University**
"Elevated troponin with angiographically normal coronary arteries in a tertiary care center: A retrospective review"
Mentor: Hani Kozman, M.D

2006-2007 **SUNY Upstate Medical University**
"Hemodynamic and hormonal changes following 4 weeks of exercise training in obese , pre –stage 1 essential hypertension"
Mentor: Scott Collier, PhD

Publications

Scientific Papers (Peer-Reviewed Journals)

1. **Hottigoudar RU**, Deam AG, Slaughter MS, Sutton BS, McCants K, Birks EJ, and Gopinathannair R.
" Ventricular Tachycardia Ablation in Patients with Left Ventricular Assist Devices: Rhythm Still Matters in the Bionic Age"
Innovations in Cardiac Rhythm Management, 2011 Nov; 2(11):537-547

2. **Hottigoudar RU**, Gopinathannair R.
"Inappropriate' sinus tachycardia: does the 100 beats per min cut-off matter? "
Future Cardiology 2013 Mar; 9(2): 273-88 (PMID: 23463978)

3. **Hottigoudar R**,Olshansky B,Gopinathannair R
"A Tale of Three Tachycardias"
The Journal of Innovations in Cardiac Rhythm Management, 4(2013): 1062-1068

4. **R.U. Hottigoudar**, A.G. Deam, E.J. Birks, K.C. McCants, M.S. Slaughter, R. Gopinathannair.
"Catheter Ablation of Atrial Flutter in Patients with Left Ventricular Assist Device Improves Symptoms of Right Ventricular Dysfunction"
Congestive Heart Failure. 2013 Jul-Aug; 19(4):165-71 (PMID: 23910701)

Manuscripts in progress

1. Rakesh Gopinathannair, Emma J.Birks,Jaimin R.Trivedi, Kelly C McCants,Brad S.Sutton, Allen G.Deam,Mark S.Slaughter, **Rashmi U.Hottigoudar**
"Impact of Cardiac Resynchronization Therapy on Clinical Outcomes in Patients with Continuous Flow Left ventricular Assist Devices"
Journal of Cardiac Failure; 2014 December (PMID: 25528199) *In Press*

2. Scott Collier, Kathryn Sandberg, Ann Moody, Vincent Frechette, Chelsea Curry, Hong Ji, **Rashmi Hottigoudar**, Debanik Chaudhuri, Marco Meucci
"Reduction of Plasma Aldosterone and Arterial Stiffness in Obese, Pre- and Stage-1 Hypertensive Subjects After Aerobic Exercise"
Journal of Human Hypertension; 2015 January (PMID: 24785976) *In Press*

Abstracts

1. Geraldino L, **Hottigoudar R**, Bonilla E, Neupane H.
"Renal Thrombotic Microangiopathy and Lupus Nephritis in a Patient with Catastrophic Antiphospholipid Antibody Syndrome"
NY Chapter ACP Upstate Scientific Meeting. Buffalo, NY: October 2006.

2. Geraldino L, **Hottigoudar R,** Bonilla E, Neupane H.
"Hepatitis C Related Polyarteritis Nodosa"
NY Chapter ACP Upstate Scientific Meeting. Buffalo, NY: October 2006.

3. **Hottigoudar R,** Glidden M, Rose F, Endy T.
"Positive Monospot test preceding the diagnosis of Hemophilus Parainfluenzae endocarditis"
NY Chapter ACP Downstate Scientific Meeting. New York, NY: March 2007.

4. **Hottigoudar R,** Gandhi A , Endy T.
"A man with hydrocephalus secondary to occult Coccidioidomycosis basilar meningitis coexistent with lung cavitation"
NY Chapter ACP Downstate Scientific Meeting. New York, NY: March 2007.

5. **Hottigoudar R,** Villarreal D, Kayalar A, ObonDent M.
Aortic dissection -A clinical entity easily overlooked in the "Rule out myocardial infarction" rubric.
National ACP Scientific Meeting. Sandiego, CA : April 2007.

6. **Hottigoudar R**, Aziz A, Tatum A, Gerlach C, Endy T.
"Occult Acanthamoeba infection"
National ACP Scientific Meeting, Sandiego, CA: April 2007.

7. **R.U. Hottigoudar,** A.G. Deam, E.J. Birks, K.C. McCants, M.S. Slaughter, R. Gopinathannair.
" Catheter Ablation of Atrial Flutter in Patients with HeartMate II Left Ventricular Assist Device Improves Symptoms of Right Ventricular Dysfunction"
International Society of Heart and Lung Transplantation (ISHLT) Meeting
Prague, Czech Republic: April 2012

4. **Rashmi U.Hottigoudar**, Emma J.Birks,Jaimin Trivedi, Brad S.Sutton, A.Gregory Deam,Mark S.Slaughter,Rakesh Gopinathannair
"Cardiac Resynchronization Therapy does not Offer Additive Benefit over ICD in Patients with Continuous Flow Left Ventricular Assist Device"
Heart Rhythm Society 2013-34th Annual Scientific Session
Denver, CO : May 8-11, 2013

Presentations

09 / 2009 **"A case of critical aortic stenosis in an octogenarian"**
Kentucky ACC Chapter Meeting
Louisville, KY

07 / 2008 **"Creating an Academic Culture: Research During residency-Perspective of a resident"**
Grand Rounds, Department of Internal Medicine
SUNY Upstate Medical University
Syracuse, NY

03 / 2008 **"Diastolic Heart Failure: No (t) time to relax"**
Grand Rounds, Department of Internal Medicine
SUNY Upstate Medical University
Syracuse, NY

06 / 2006 **"Identification and Management of osteoporosis in women 50-64 years of age-An algorithmic approach to the primary care physician"**
Practice Based Learning/Systems Based Practice
Department of Internal Medicine
SUNY Upstate Medical University
Syracuse, NY

Lectures

12/2012 **"Approach to Cardiac Arrhythmias and Syncope"**
Department of Medicine, Core curriculum lectures
University of Louisville
Louisville, KY

8/2011 **"Cardiac Arrhythmia Emergencies"**
Department of Medicine, Core curriculum lectures
University of Louisville
Louisville, KY

11/2010 **"Pericardial Diseases"**
Department of Medicine, Core curriculum lectures
University of Louisville
Louisville, KY

05 / 2009 **"A Case of Hypoglycemia: What's obvious is not so obvious"**
CPC Grand Rounds, Department of Internal Medicine
SUNY Upstate Medical University
Syracuse, NY

01 / 2009 **" Errors in Internal Medicine"**
Morbidity and Mortality Conference
Veterans Affairs Medical Center
Syracuse, NY

12 / 2008 **"Voice of the Heart"**
CPC Grand Rounds, Department of Internal Medicine
SUNY Upstate Medical University
Syracuse, NY

Attachment B-Economic Feasibility-A.3

Equipment Quote

CORE® PURCHASE AGREEMENT

12/22/2017

Mr. Matthew Littlejohn
North Knoxville Medical Center
7565 Dannaher DR.
Powell, TN 37849

Dear Matthew:

Thank you for your interest in Volcano Corporation ("VOLCANO") and the Volcano CORE® Precision Guided Therapy System. VOLCANO's CORE® is the combination of diverse and individual diagnostic elements into an even more powerful imaging and measuring tool. Enclosed is an agreement for North Knoxville Medical Center to create *one* (1) CORE™ integrated state-of-the-art cardiac catheterization lab(s).

Should you have any questions at all, please do not hesitate to contact me at (615) 969-2338. We at VOLCANO look forward to a long and mutually beneficial relationship.

Best regards,

Bruce Williams
Territory Manager

Purchase Agreement
CORE® Precision Guided Therapy System

This Purchase Agreement ("**Agreement**") is subject to the Agreement Number HPG-7415 by and between **Volcano Corporation**, a Delaware corporation having its principal place of business at located at 3721 Valley Centre Drive Suite 500, San Diego, CA 92130 ("**Supplier**"), and **HealthTrust Purchasing Group, L.P.**, a Delaware limited partnership, having its principal place of business at 155 Franklin Road, Suite 400, Brentwood, Tennessee 37027 (hereinafter referred to as "**HPG**" or "**HealthTrust**"), (each a "**party**" to and collectively "**parties**" to this Agreement), for the benefit of **North Knoxville Medical Center** ("a Participant").

Quotation Date: 12/22/2017

Payment terms are Net 30. CORE™ Unit(s) will be shipped FOB Destination, freight pre-paid and added to invoice.

Qty	Catalog Number	Product	List Price Each	Extended Price Each
1	CORE	**CORE® Precision Guided Therapy System** *CORE® Integrated Precision Guided Therapy System with Phased Array IVUS and FFR; Medical Grade Printer, Rotational IVUS upon request. Includes software support for useful life.*	$216,275.00	$99,775.00
1		**End User License Agreement** *Use and maintenance of Software within Product is subject to the terms and provisions of the License Grant in the Purchase Agreement. The terms of the License Grant are incorporated herein by reference.*	Included	Included
1	435-0100.30	**iFR® Modality Feature** *iFR Hyperemia-Free Lesion Assessment Modalit,CORE Interface, Operator's Manual.*	Included	Included
1	REV04	**CORE® Revolution** *Includes SpinVision PIMr and PIM Cable*	Included	Included
1	FFR04	**CORE® FFR** *Includes PIMffr and PIMffr Cable*	Included	Included
1	PRN01	**CORE® Printer**	Included	Included
1	CORE Control Pad	**CORE® Control Pad** *Bedside touchscreen controller*	$16,500.00	$7,650.00
1		**Installation Cost**	Included	Included
1		**One (1) Year Warranty**	Included	Included

Total Amount Due: **$107,425.00**

Full Service Agreement

Full Service Price for CORE® Unit/Per Year **$9,800.00**

Total Amount Due with 1 Year(s) Extended Service: **$117,225.00**

The pricing outlined in this Agreement is based on the anticipated needs of Customer. Additional components, accessories or installation costs may be required.

Except as specifically outlined in this agreement, VOLCANO makes no commitment, promise or legal obligation to deliver any future product, service, or enhancements to existing products, features, and/or functionality. Any and all of the aforementioned may only be provided under terms to be agreed upon in writing when and if such products become commercially available.

The pricing, terms and conditions offered herein is confidential and proprietary and is subject to the Master Contract with Volcano Corporation and HealthTrust Purchasing Group, L.P. Each Party shall use the same degree of care to protect the confidentiality of the disclosed information as that Party uses to protect the confidentiality of its own information, but not less than reasonable care. All Confidential Information shall remain the property of the Disclosing Party.

ACCEPTED BY:

NORTH KNOXVILLE MEDICAL CENTER

7565 Dannahar Drive
Powell, TN 37849

Phone (865) 218-7011
Fax

Authorized Agent Name *(please print)*

Signature

Title

Date

ACCEPTED BY:

VOLCANO CORPORATION

2870 Kilgore Road
Rancho Cordova, CA 95670

Phone (800) 228-4728
Fax (916) 638-8812

Authorized Agent Name *(please print)*

Signature

Title

Date

Please send a purchase order and this signed Agreement to VOLCANO Customer Service.
Fax (916) 638-8812 or email cs@volcanocorp.com. Pricing and terms are subject to management approval.

CHS
HPG
1
Prospect

Attachment B-Economic Feasibility-B

Project Funding Letters

CHS

January 4, 2018

Ms. Melanie Hill
Executive Director
Tennessee Health Services and Development Agency
500 Deaderick Street, 9th Floor
Nashville, TN 37243

Re: Funding Support for Metro Knoxville HMA, LLC (d/b/a North Knoxville Medical Center)

COMMUNITY
HEALTH
SYSTEMS

4000 Meridian Boulevard
Franklin, TN 37067
Tel: (615) 465-7000

P.O. Box 689020
Franklin, TN 37068-9020

Dear Ms. Hill:

CHS/Community Health Systems, Inc., the parent of Metro Knoxville HMA, LLC (d/b/a North Knoxville Medical Center), has internal funds available for the commitment to the following project, which has an approximate project cost of $227,225.

CHS/Community Health Systems, Inc. had cash flow from operating activities of $1.137 billion in its fiscal year ending December 31, 2016. Moreover, as of September 30, 2017, the availability to CHS/Community Health Systems, Inc. for additional borrowings under our Credit Facility, as $929 million pursuant to the $929 million Revolving Credit Facility, after taking into account the $0 million outstanding at that date, of which $63 million was set aside for outstanding letters of credit.

We believe that these funds, along with internally generated cash and continued access to the capital markets, will be sufficient to finance the commitment to the above specified project. CHS/Community Health Systems, Inc. will advance funds as necessary to complete this project.

Should you need anything further, I can be reached at 615-465-7015.

Regards,

Edward W. Lomicka
Vice President and Treasurer

Tennova Healthcare

January 10, 2018

Ms. Melanie M. Hill
Executive Director
Health Services and Development Agency
Andrew Jackson Building
502 Deaderick Street, 9th Floor
Nashville, Tennessee 37243

RE: Expansion of Diagnostic Cardiac Cath Services to Include Therapeutic Cath Services

Dear Ms. Hill,

As the Chief Financial Officer of Tennova Healthcare – North Knoxville Medical Center, I am writing this letter to confirm that we have sufficient cash reserves available to fully fund the $227,225 project cost associated with our hospital's application to expand its existing cardiac catheterization services to include therapeutic (interventional) cardiac catheterization. The project cost amount is based on the equipment cost, legal and administrative costs, and a contingency amount. There is no facility renovation or construction needed for implementation of therapeutic cath services, as the services will be provided in the hospital's existing cardiac catheterization/vascular lab.

Tennova Healthcare – North Knoxville Medical Center is part of Community Health Systems ("CHS"), one of the nation's leading hospital providers with 127 hospitals in 20 states across the nation. Audited Financial Statements for CHS, the ultimate parent organization of the applicant, are included in this application.

Sincerely,

Rhonda Maynard
Chief Financial Officer

Attachment B-Economic Feasibility-F1

CHS Audited Financial Information

Attachment B-Economic Feasibility-F1

CHS Audited Financial Information

COMMUNITY HEALTH SYSTEMS, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

	December 31,	
	2016	2015
	(In millions, except share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 238	$ 184
Patient accounts receivable, net of allowance for doubtful accounts of $3,773 and $4,110 at December 31, 2016 and 2015, respectively	3,176	3,611
Supplies	480	580
Prepaid income taxes	17	27
Prepaid expenses and taxes	187	197
Other current assets (including assets of hospitals held for sale of $117 and $17 at December 31, 2016 and 2015, respectively)	568	567
Total current assets	4,666	5,166
Property and equipment		
Land and improvements	782	969
Buildings and improvements	7,438	9,051
Equipment and fixtures	4,202	4,886
Property and equipment, gross	12,422	14,906
Less accumulated depreciation and amortization	(4,273)	(4,794)
Property and equipment, net	8,149	10,112
Goodwill	6,521	8,965
Other assets, net of accumulated amortization of $929 and $903 at December 31, 2016 and 2015, respectively (including assets of hospitals held for sale of $878 and $41 at December 31, 2016 and 2015, respectively)	2,608	2,352
Total assets	$ 21,944	$ 26,595
LIABILITIES AND EQUITY		
Current liabilities:		
Current maturities of long-term debt	$ 455	$ 229
Accounts payable	995	1,258
Accrued liabilities:		
Employee compensation	731	823
Interest	207	227
Other (including liabilities of hospitals held for sale of $81 and $6 at December 31, 2016 and 2015, respectively)	499	535
Total current liabilities	2,887	3,072
Long-term debt	14,789	16,556
Deferred income taxes	411	593
Other long-term liabilities	1,575	1,698
Total liabilities	19,662	21,919
Redeemable noncontrolling interests in equity of consolidated subsidiaries	554	571
Commitments and contingencies (Note 17)		
EQUITY		
Community Health Systems, Inc. stockholders' equity:		
Preferred stock, $.01 par value per share, 100,000,000 shares authorized; none issued	-	-
Common stock, $.01 par value per share, 300,000,000 shares authorized; 113,876,580 shares issued and outstanding at December 31, 2016, and 113,732,933 shares issued and 112,757,384 shares outstanding at December 31, 2015	1	1
Additional paid-in capital	1,975	1,963
Treasury stock, at cost, no shares at December 31, 2016 and 975,549 shares at December 31, 2015	-	(7)
Accumulated other comprehensive loss	(62)	(73)
(Accumulated deficit) retained earnings	(299)	2,135
Total Community Health Systems, Inc. stockholders' equity	1,615	4,019
Noncontrolling interests in equity of consolidated subsidiaries	113	86
Total equity	1,728	4,105
Total liabilities and equity	$ 21,944	$ 26,595

See notes to the consolidated financial statements.

COMMUNITY HEALTH SYSTEMS, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

	December 31,	
	2016	2015
	(In millions, except share data)	
ASSETS		
Current assets:		
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Patient accounts receivable, net of allowance for doubtful accounts of $3,773 and $4,110 at December 31, 2016 and 2015, respectively	3,176	3,611
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Preferred stock, $.01 par value per share, 100,000,000 shares authorized; none issued	-	-
Common stock, $.01 par value per share, 300,000,000 shares authorized; 113,876,580 shares issued and outstanding at December 31, 2016, and 113,732,933 shares issued and 112,757,384 shares outstanding at December 31, 2015	1	1
Additional paid-in capital	1,975	1,963
Treasury stock, at cost, no shares at December 31, 2016 and 975,549 shares at December 31, 2015	-	(7)
Accumulated other comprehensive loss	(62)	(73)
(Accumulated deficit) retained earnings	(299)	2,135
Total Community Health Systems, Inc. stockholders' equity	1,615	4,019
Noncontrolling interests in equity of consolidated subsidiaries	113	86
Total equity	1,728	4,105
Total liabilities and equity	$ 21,944	$ 26,595

See notes to the consolidated financial statements.

Supplemental #1 (Copy)

Metro Knoxville HMA, LLC d/b/a Tennova Healthcare

CN1801-001

Tennova Healthcare

Supplemental Information
Certificate of Need Application CN1801-001
Metro Knoxville HMA, LLC d/b/a Tennova Healthcare – NKMC
Expansion of cardiac cath services to include interventional (therapeutic) cardiac cath services

Please see the following Supplemental Information provided in response to the January 19, 2018 letter from Phillip M. Earhart, HSD Examiner, requesting clarification or additional information on the Certificate of Need Application CN1801-001 submitted to HSDA on January 10, 2018.

1. **Section A, Applicant Profile, Item 2, Page 1**

   The contact number for Clyde Wood is noted. However, the contact number listed in the Letter of Intent (865-859-1205) is different from the number listed in the application (862-632-5605). Please clarify.

RESPONSE: The correct contact number for Clyde Wood is 865-859-1205, which was listed in the Letter of Intent. Also, for clarification, the fax number for Clyde Wood is 865-859-1229.

2. **Section A, Executive Summary, Item 3.A.1 (Description) Page 3**

   It is noted Physician Regional Medical Center's (PRMC's) cath services are highly utilized (151.5% for the most recent 3-year period). However, please provide the percentage of PRMC's cath services referenced for the 3 year period that are classified as diagnostic and/or therapeutic. What is the average time required to complete a diagnostic and therapeutic cath case respectively?

RESPONSE: The following chart provides the percentage of PRMC's cath services utilization referenced for the 3-year period (2013-2015) as shown in Table 11 (p. 36) of the application. (Please also see Attachment B-Need-A.8 for details of the diagnostic and therapeutic split of procedures in PRMC's cath labs.)

PRMC Cath Services Utilization by Type of Procedure, 2013-2015

Cardiac Cath Equivalents*	Diagnostic	Therapeutic	Total
Cardiac catheterization	3,529.0	564.0	4,093.0
Peripheral vascular cath	39.0	4,152.0	4,191.0
Electrophysiological studies	148.0	656.0	804.0
Total Caths	**3,716.0**	**5,372.0**	**9,088.0**
% of Total Caths by Type	**40.9%**	**59.1%**	**100.0%**

* Sources & Notes:
Tennessee Department of Health ("TDH"), Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics; Certificate of Need Cardiac Cath Calculations based on 2009 State Health Plan Standards.
*Highest weighted cardiac cath services provided based on TDH Hospital Discharge Data System 2013-2015 recorded procedure level codes (CPT) and service categories.

The total average times to complete cases are 60 minutes for a diagnostic cath case and 90 minutes for a therapeutic cath case, including procedure time and room turnaround time.

3. **Section A, Executive Summary, Item B.1 (Rational for Approval) Page 5**

It is noted North Knoxville Medical Center (NKMC) transfers approximately 400 ED and inpatients annually from its hospital who would benefit from the proposed interventional cardiac cath service. Please complete the following chart indicating where those 400 patients were referred for interventional cardiac services for the year 2017.

RESPONSE: Please see the table below.

Name of Hospital	County	# of patients referred (2017)		Open Heart Surgery Capability (Y or N)
		ED	Inpatient	
Physicians Regional Medical Center	Knox	130	193	Yes
Turkey Creek Medical Center	Knox	10	15	Yes
University of Tennessee Med. Center	Knox	8	6	Yes
Fort Sanders Regional Medical Center	Knox	5	6	Yes
Vanderbilt University Hospital	Davidson	4	0	Yes
East Tennessee Children's Hospital	Knox	1	0	No
Parkwest Medical Center	Knox	1	0	Yes
Unknown/Other	N/A	2	2	N/A
Total	**N/A**	**161**	**222**	**N/A**

Sources & Notes:
Tennova Healthcare-NKMC internal data.
ED data is for January 1, 2017 through December 17, 2017.
Inpatient data is for most recent 12-month period for which data is available, *i.e.*, Nov. 2016-Oct 2017.

4. **Section A, Executive Summary, Item B.4 (Orderly Development) Page 7**

Please provide any letters of support from cardiologists supporting the addition of interventional cardiac procedures at NKMC.

RESPONSE: Please see Attachment 1 for letters of support.

5. **Section A. Executive Summary, Item I 6B (1) Plot Plan**

   The plot plan is noted. However, please provide the size of site (in acres) and location of structure on the site and submit a revised plot plan.

RESPONSE: Please see Attachment 2 for revised plot plans showing the size of the site (in acres) and location of the structure on the site.

6. **Section B. 1. Need (Specific Criteria - Cardiac Catheterization) Item 3**

   The transfer agreement with Physician Regional Medical Center and Turkey Creek is noted. Please complete the following table.

RESPONSE: See the table below. *Please note*: NKMC does not have information in hand on the ultimate medical and procedure-level discharge disposition of the nearly 400 cardiac patients transferred annually from its Emergency Department ("ED") and inpatient units. However, it must be noted that generally, the cardiac patients are transferred specifically because the physician(s) at NKMC expect that the patient will require an interventional cardiac cath procedure, and NKMC does not have that capability. Thus, it is reasonable to assume that the vast majority, if not all, of the cardiac patients transferred from NKMC to a provider with interventional cardiac cath capability received an interventional cath at the receiving facility.

Hospital	Distance From NKMC	Emergency Travel Time from NKMC to Hospital by ground	2017 # Transfers for open heart surgery*	2017 # Transfers for therapeutic caths
Physician Regional Med. Center	7.8 miles	17 minutes	44	323
Turkey Creek Medical Center	19.7 miles	25 minutes	0	25

Sources & Notes:
Tennova Healthcare-NKMC internal data and Google Maps.
*Number of patients is based on 37 inpatient transfers for 12-month period Nov. 2016-Oct. 2017 (most recent data available) and 7 open heart surgery transfers directly from the ED in CY2017.
Travel time for EMS is estimated based on average travel time, without consideration of the ability of EMS to use lights and sirens; thus, the times may be slightly overstated for emergency transport.

7. **Section C. 1. Need (Specific Criteria - Therapeutic Cardiac Catheterization) Item 14**

   The applicant has only provided Year One and Year Two projected utilization. However, annual volume shall be measured upon a two year average beginning at the conclusion of the applicant's first year of operation. Please revise.

RESPONSE: The following forecasts for Project Years 1 – 3 are based on the service area cardiac cath patients at PRMC (currently cared for by ETHC interventional cardiologists

performing cath procedures at NKMC) who would likely shift from PRMC to NKMC by Project Year 3.

NKMC Projected Cardiac Cath Volume, Project Years 1 – 3			
Calculations	**Year 1**	**Year 2**	**Year 3**
Service Area Cardiac Cath Diagnostic Patients Expected to Shift from PRMC to NKMC (*% multiplied by actual CY17 volume presented in CON Table 4, CON p. 25)*	40%	50%	55%
Equals Projected Diagnostic Caths	305	381	419
Plus Therapeutic Caths	101	126	138
***Equals* Total Projected Cardiac Caths**	**406**	**507**	**557**
Therapeutic Caths as % of Total Caths	25%	25%	25%

NKMC's forecast is conservative because it assumes that just over half of the identified ETHC interventional cardiologists' service area outpatients served will choose to receive care at NKMC rather than PRMC. Realistically, a larger percent of service area patients than forecasted in Project Years 1 – 3 will likely prefer to receive cardiac cath services closer to their homes in an easily accessible location outside of downtown Knoxville, on a more consumer-friendly campus than PRMC. Additionally, emergency medical services (ambulances) that currently bypass NKMC because it does not have therapeutic cardiac cath capabilities will no longer do so, resulting in increased patient volume above that considered in the redirection scenarios above.

Another reasonableness test regarding projected volume is to determine the percentage of the identified physicians' service area patients NKMC projects to shift from PRMC. To that end, the following table shows the total number of cardiac caths performed by Drs. Akhtar, Chaudhry, Cox, Irivbogbe, Michelson, and Treasure in CY2017 (through December 17th) on service area residents, regardless of the hospital campus at which the procedure was performed. As shown, the forecasted volume of redirected patients for these ETHC interventional cardiologists represents a small percentage of the physicians' total historical volume, further supporting NKMC's ability to meet the minimum volume standards for therapeutic cardiac cath services.

Select Physicians' Projected Year 3 NKMC Volume as a % of the Physicians' Current Cath Volume (CY2017)			
Calculations	**Diagnostic Cardiac Cath**	**Therapeutic Cardiac Cath**	**Total Cardiac Caths**
Select Physicians' Total Cardiac Caths provided to Service Area Residents, CY17*	1,784	1,119	2,903
Divided by Projected Year 2 Caths, NKMC (*see* prior analyses)	419	138	557
Equals % of Physicians' Total Service Area Caths provided at NKMC, Project Year 2	23.5%	12.3%	19.2%
Sources & Note: Tennova Healthcare internal data available for January 1 through December 19, 2017. *Includes service area inpatient and outpatient cardiac caths performed at the three Tennova Hospital campuses (PRMC, Turkey Creek, and NKMC) combined.			

8. **Section C. 1. Need (Specific Criteria - Therapeutic Cardiac Catheterization) Item 15**

   Please clarify if a formal transfer agreement with an open heart tertiary center will be maintained. If so, please indicate the name of the open heart tertiary center.

RESPONSE: NKMC will maintain its formal transfer agreement with PRMC and Turkey Creek in the short-term. However, in the long-term, NKMC will maintain a formal transfer agreement with Turkey Creek Medical Center, as PRMC will transition from an open heart tertiary center to a specialized campus focused on a select group of services that will ultimately exclude open heart surgical services.

9. **Section C.1. Need, (Specific Criteria, Therapeutic Cardiac Catheterization) Item 16**

   Please provide the following information for the NKMC cardiologists that will perform the proposed cardiac therapeutic catheterizations: 1) estimated number of diagnostic cardiac procedures conducted for each of the past five (5) years, and 2) the estimated number of therapeutic cardiac procedures conducted for each of the past five (5) years.

   Please provide the names and credentials (i.e., curriculum vitae's and Board Certificates) for the physicians on the hospital's medical staff who will be performing these procedures. Please note those physicians who are board certified invasive and/or interventional cardiologists.

RESPONSE: Please see the following table for the requested information. Note that NKMC has provided the most recent three years of data available for the physicians; information for the past five years is not available. Physicians' Curriculum Vitae were provided with the

application for select physicians (*see* Attachment B-Need-A.16). Additional CVs are included in Attachment 3.

NKMC Cardiologists' Volume who will Perform Proposed Therapeutic Cardiac Catheterizations

Physician	Board-Certifications	2015		2016		2017	
		Diag.	Thera-peutic	Diag.	Thera-peutic	Diag.	Thera-peutic
Yasir Akhtar, MD	Interventional Cardiology, Cardiovascular Disease, Internal Medicine-General	379	226	433	272	514	355
Fahd Chaudhry, MD	Interventional Cardiology, Cardiovascular Disease, Internal Medicine-General	N/A	N/A	34	14	318	128
David Cox, MD	Cardiovascular Disease, Internal Medicine-General	171	60	148	52	169	39
Osareme Irivbogbe, MD	Interventional Cardiology, Cardiovascular Disease, Internal Medicine-General	N/A	N/A	71	38	347	166
Barry Michelson, MD	Interventional Cardiology, Cardiovascular Disease, Internal Medicine-General	178	81	181	98	205	109
Charles Treasure, MD	Interventional Cardiology, Cardiovascular Disease, Internal Medicine-General	195	29	158	35	172	30

Sources & Notes:
Tennova Healthcare internal data.
Physicians with a N/A shown were not on the hospital's medical staff for the time period indicated.

10. Section B, Need, Item E, Page 36

Table 11 on page 36 indicating the service area cardiac cath lab utilization is noted. However, please clarify the reason(s) the 2016 Joint Annual Reports indicates 4 cath labs rather than 3 for PRMC, and 4 cath labs instead of 1 for NKMC as reflected in table 11. If there is an error in the number of labs reported in table 11, please adjust the utilization in table 11 and submit a replacement page 36 (labeled as 36R).

The cardiac cath equivalents total of 9,088 is noted for Tennova Healthcare (PRMC) in table 11. However, when the cardiac formula is applied to the reported cardiac cath utilization in the 2016 Joint Annual Report the grand weighted total for PRMC is 3,982. Please explain the discrepancy.

RESPONSE: Table 11 on page 36 of the application is correct, and is consistent with the information provided by the Tennessee Department of Health, Division of Policy, Planning and Assessment. (*See* Attachment B-Need-A.8). The data provided by the Tennessee Department of Health ("TDH" or "Department of Health") is based on catheterization ICD-9,

ICD-10 CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association for the 2013-2015 time period. During that three-year timeframe, PRMC had 3 cath labs, as was reported on the relevant years' Joint Annual Reports ("JAR").

PRMC added a fourth cardiac cath lab in 2016, as reflected in its 2016 JAR. Thus, the historical utilization for 2013-2015 is not affected by the more recent addition of a 4th cath lab at PRMC. Notably, however, if the 2013-2015 three-year cath lab equivalents of 9,088.0 were divided by the total capacity of 4 cath labs (*i.e.*, 8,000 total weighted cases per year), PRMC's utilization for the most recent three-year period would still far exceed the 70% utilization threshold, with a three-year utilization of 113.6%.

NKMC reported one (1) cardiac cath lab in its 2016 JAR, as indicated in Attachment 4, which is the excerpted page from NKMC 2016 JAR. Table 11 on CON p. 36 accurately states that NKMC operates 1 cardiac cath lab (as reflected in the architectural drawings included in the CON application).

Regarding the comparison between the data reported in the 2016 JAR for PRMC and the utilization calculations completed by the Department of Health, a comparison of the data is apples and oranges. TDH uses the highest weighted procedure-level CPT code to determine the procedure category for each patient which does not necessarily align with the hospital's grouping of each case as reported in the 2016 JAR categories.

Moreover, the 2016 JAR Schedule D Cardiac Service format has been simplified compared to prior year JARs, reducing the categories available for providers to use in identifying cases performed in their cath labs. While the new JAR format aligns with the categories listed in the cardiac cath rules to determine procedure equivalents, the 2016 JAR no longer includes the broadly defined "all other heart procedures" category. Thus, providers, including PRMC, are not able to include all types of cath procedures performed in their cath labs.

In summary, the reformatting of the current JAR reporting (that is manually completed by hospitals) compared to the electronically submitted patient-level CPT data submitted to TDH means that the data collected in each instance differs in the level of detail and thus, comprehensiveness. NKMC appropriately relied on the patient-level detail reported to the Department of Health to determine utilization of existing cardiac cath services in the defined 11-county region.

11. Section B, (Economic Feasibility) Item A. Project Costs Chart, Page 39

The moveable equipment cost of $117,225 is noted. However, please list all equipment over $50,000.

RESPONSE: NKMC's modernization and upgrade of the existing cath lab requires only the purchase of an integrated precision guided therapy system with Phased Array IVUS and FFR (at the cost of $117,225) to supplement the existing cath lab's equipment. (*See* the equipment quote in Attachment B-Economic Feasibility-A.3 in the application.) No other equipment is needed, *e.g.*, the hospital already has a balloon pump, which is used for transport of cardiac patients.

12. Section B, Economic Feasibility, Item C Historical Data Charts

Historical Data Chart (Total Facility) Pages 41 and 42
The Historical Data Chart is noted. Please also include the number of patient days for 2014, 2015, and 2016. It also appears the total deduction column for 2016 totaling $469,407,000 totals $469,497,000. Please correct and submit a replacement page 41.

Please explain why charity care declined from $1,251,000 in 2014 to $427,000 in 2016 while gross operating revenue increased during the same time frame.

Please indicate the reason management fees decline from $2,481,000 in 2014 to $1,025,000 in 2016.

Historical Data Chart (Project Only) Pages 43 and 44
Please explain the reasons there are no Provision for both charity care and bad debt in the Historical Data Chart.

RESPONSE: Please see Attachment 5 for the revised page 41, showing historical patient days and the corrected typographical error in the 2016 total deduction column.

NKMC's charity policy changed in 2014 with the acquisition by Community Health Systems ("CHS"). Policy changes were principally comprised of the following: 1) focus on inpatient and ED patients; 2) change in qualifications of uninsured, as defined in health care reform regulations; 3) more stringent charity care qualifications; and, 4) case-by-case application in place of expiration-based approvals.

NKMC's management fees changed with the acquisition by CHS in 2014. Management fees are derived from unallocated corporate costs that declined between 2014 and 2016.

Deductions from revenue are not tracked at the service line level. For purposes of the Project Only Projected Data Charts, estimates of charity care and bad debt were projected based upon Facility-wide historical experience and Project Only payor mix.

13. Section B, Economic Feasibility, Item D (Projected Data Charts)

Please indicate the calendar years associated with Year One and Year Two of the proposed project.

The Projected Data Chart for the total facility on page 46 is noted. However, please include the number of patient days in the "A. Utilization Data" line and submit a replacement page 46 (labeled as 46R).

The Projected Data Chart for the Project Only on page 48 is noted. However, Year 2 Total Operating Expense totaling $2,147,500 appears to be incorrect. Please correct and submit a replacement page 48 (labeled as 48R).

RESPONSE: Project Year 1 is CY2019 and Project Year 2 is CY2020.

Please see Attachment 6 for Replacement page 46 (46R). Attachment 7 includes the Replacement Projected Data Chart pages 48 and 49, reflecting a corrected Other Operating Expenses of $124,500. Year Two Total Operating Expenses totaling $2,147,500 remain unchanged.

14. Section B. (Economic Feasibility) Question E. (1)

The gross charge, deduction from revenue, and average net charge for Year One and Year Two appears to be incorrect. Please verify the following figures for Year One and Year Two of the proposed project.

	Year One	Year Two
Gross Charge	$44,768	$46,098
Deduction from Revenue	$37,158	$38,261
Average Net Charge	$7,610.83	$7,836

RESPONSE: The above calculations are correct.

15. Section B. (Economic Feasibility) Question E. (2)

Please compare the proposed cardiac therapeutic catheterization charges to other hospitals in the proposed service area including PRMC and Turkey Creek.

RESPONSE: Because the proposed Project establishes new therapeutic cardiac catheterization services at NKMC, the proposed Project incorporates average charge profiles from Tennova providers PRMC and Turkey Creek, as well as other service area therapeutic provider charge information (as available), adjusted for service area payor mix and service types. Moreover, projected net payment per case is based upon anticipated third-party payment rates for the proposed service area payor mix and anticipated market changes.

NKMC's average charges by catheterization category (diagnostic and therapeutic) for Project Year One are summarized in the below table:

Catheterization Category	Cases	Avg. Charges
Diagnostic	305	$ 29,895
Therapeutic	101	$ 89,685
Total	**406**	**$ 44,768**

Since NKMC's proposed program is a new service with a charge profile commensurate to Tennova hospitals PRMC and Turkey Creek, NKMC prepared a charge analysis comparing these Tennova facilities charges to other service area hospitals. Due to outpatient market data availability limitations, NKMC compared average charges per case for inpatient therapeutic cases (defined as MS-DRGs 246-251) by provider, summarized in the below table.

Hospital	Avg. Charges
Fort Sanders Regional	$ 55,200
Parkwest Medical Center	$ 46.900
Methodist Medical – Oak Ridge	$ 50,100
Tennova Healthcare	$101,600
University of TN	$ 72,500
Source: CMS Medicare Provider Data, FY2015.	

16. Section C. (Economic Feasibility) Question F (2) Page 51

The Net Operating Margin Ratios appear to be calculated incorrectly in the table on page 51. Please verify the following table.

2nd Year previous to Current Year	1st Year previous to Current Year	Projected Year One	Projected Year Two
11.2%	5.2%	40.6%	45.9%

RESPONSE: The above calculations for the Project Only are correct.

17. Section B, Economic Feasibility, Item F (3) Page 51

The capitalization ratio of 89.5 is noted. However, please indicate how it was calculated.

RESPONSE: The capitalization ratio for Community Health Systems, Inc. and Subsidiaries as reflected in the Consolidated Balance Sheets as of December 31, 2016 is calculated as follows:

- *Formula*: (Long Term Debt /(Long Term Debt + Total Equity)) * 100.
- *Data*: (14,789/(14,789+1,728)*100) = 89.5.

18. Section B, Economic Feasibility, Item H, Page 52

It is noted the project will employ 2.0 RNs and 2 Techs in Year One of the proposed project. However, please clarify if $402,600 in the Projected Data Chart equals the salaries for those 4 positions.

RESPONSE: The Project Only Year One expense of $402,600 includes salaries and benefits expenses for 2 RNs and 4 Techs, a total of 6 positions, as follows:

Factor	FTEs	Avg. Hourly Wage	Amount
RNs	2.0	$30	$124,800
Techs	4.0	$23	$191,300
Subtotal	6.0	$25	$316,100
Add: Benefits @ 27.4%			$ 86,500
Salaries & Benefits			**$402,600**

19. Section B, Contribution to Orderly Development, Item E.2 Page 57

Please provide a brief overview of Community Health System's corporate integrity agreement dated July 28, 2014.

RESPONSE: In July 2014, Community Health Systems, Inc. entered into a Corporate Integrity Agreement with the Office of Inspector General of the Department of Health and Human Services in connection with the resolution of certain lawsuits. The Agreement requires the company to engage in various compliance efforts for five years. A copy of the Corporate Integrity Agreement can be found at https://oig.hhs.gov/fraud/cia/agreements/Community_Health_Systems_07282014.pdf.

20. Section B, Contribution to Orderly Development Item F (2) Outstanding Projects

Please provide a brief description of the current progress of CN1206-027AMM.

RESPONSE: The project is underway, including for example, delivery of the chiller in late December, which will be installed by the end of January 2018. The floor pad is being poured late January 2018, with final site review by Siemens expected by the end of the same month. The PET/CT will be delivered to NKMC early February 2018, with calibration of the system and training of staff completed by the end of February so that initiation of services is expected by March 1, 2018.

21. Section B, Quality Measures

Please verify and acknowledge the applicant will be evaluated annually whether the proposal will provide health care that meets appropriate quality standards upon the following factors:

(3) Quality. Whether the proposal will provide health care that meets appropriate quality standards may be evaluated upon the following factors:

(a) Whether the applicant commits to maintaining staffing comparable to the staffing chart presented in its CON application;

(b) Whether the applicant will obtain and maintain all applicable state licenses in good standing;

(c) Whether the applicant will obtain and maintain TennCare and Medicare certification(s), if participation in such programs was indicated in the application;

(d) Whether an existing healthcare institution applying for a CON has maintained substantial compliance with applicable federal and state regulation for the three years prior to the CON application. In the event of non-compliance, the nature of non-compliance and corrective action shall be considered;

(e) Whether an existing health care institution applying for a CON has been decertified within the prior three years. This provision shall not apply if a new, unrelated owner applies for a CON related to a previously decertified facility;

(f) Whether the applicant will participate, within 2 years of implementation of the project, in self-assessment and external assessment against nationally available benchmark data to accurately assess its level of performance in relation to established standards and to implement ways to continuously improve.

1. This may include accreditation by any organization approved by Centers for Medicare and Medicaid Services (CMS) and other nationally recognized programs. The Joint Commission or its successor, for example, would be acceptable if applicable. Other acceptable accrediting organizations may

include, but are not limited to, the following:

(ix) Joint Commission or another appropriate accrediting authority recognized by CMS, or other nationally recognized accrediting organization, for a Cardiac Catheterization project that is not required by law to be licensed by the Department of Health;

(h) For Cardiac Catheterization projects:

1. Whether the applicant has documented a plan to monitor the quality of its cardiac catheterization program, including but not limited to, program outcomes and efficiencies;

2. Whether the applicant has agreed to cooperate with quality enhancement efforts sponsored or endorsed by the State of Tennessee; and

3. Whether the applicant will staff and maintain at least one cardiologist who has performed 75 cases annually averaged over the previous 5 years (for an adult program), and 50 cases annually averaged over the previous 5 years (for a pediatric program).

RESPONSE: The applicant confirms that it will be evaluated annually whether the proposal provides health care that meets the appropriate quality standards based upon the above factors.

AFFIDAVIT

STATE OF TENNESSEE

COUNTY OF WILLIAMSON

NAME OF FACILITY: NORTH KNOXVILLE MEDICAL CENTER

I, Martin G. Schweinhart, President of Metro Knoxville HMA, LLC, after first being duly sworn, state under oath that I am the applicant named in this Certificate of Need application or the lawful agent thereof, that I have reviewed all of the supplemental information submitted herewith, and that it is true, accurate, and complete.

Signature/Title

Sworn to and subscribed before me, a Notary Public, this the 24th day of January, 2018, witness my hand at office in the County of Williamson, State of Tennessee.

NOTARY PUBLIC

My commission expires 9-16, 2019.

MARY ANN ECKMAN
STATE OF TENNESSEE NOTARY PUBLIC
WILLIAMSON COUNTY
My Commission Expires 09-16-2019

HF-0043

Revised 7/02

Attachment 1 – Supplemental Information

Physician Letters of Support

East Tennessee Heart Consultants

900 East Oak Hill Avenue
Suite 500 & 600
Knoxville, TN 37917
Phone: (865) 647-5800– Fax: (865) 525-0245

Y.N. Akhtar, M.D.
R. Hottigoudar, M.D.
B.I. Michelson, MD., F.A.C.C
M. Barb, PA-C
F. A. Chaudhry, M.D., M.S., F.A.C.C.
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J.A. Ternay, M.D., F.A.C.C.
C.T. Doiron, M.D., F.A.C.C.
K.W. McCoy, M.D., F.A.C.C.
C.B. Treasure II, M.D., F.A.C.C.

January 24, 2018

Phillip M. Earhart, HSD Examiner
Tennessee Health Services and Development Agency
Andrew Jackson Building, 9th Floor
502 Deaderick Street
Nashville, TN 37243

RE: Certificate of Need Application CN1801-001
Metro Knoxville HMA, LLC d/b/a Tennova Healthcare – North Knoxville Medical Center
Expansion of existing diagnostic cardiac cath services to include interventional (therapeutic) cardiac cath services

Dear Mr. Earhart,

I am writing this letter to show my support for the aforementioned project at North Knoxville Medical Center (NKMC). I am a Board-certified in Interventional Cardiologist with 4 yrs of experience working in and caring for patients in the greater Knoxville area. I intend to provide interventional cardiac cath services at NKMC upon approval of this project.

The location of NKMC provides a more convenient, and accessible, point of service for patients in need of interventional cardiac procedures. The approval to provide therapeutic cardiac cath services in NKMC's existing diagnostic cardiac cath lab will provide a more immediately accessible point for patients to receive intervention, which will ultimately enhance patient's quality of care since 'time is muscle'. As the provision of therapeutic cardiac caths without on-site OHS backup has become an accepted standard within the medical community, the ability to provide this care in a timelier manner and without the additional cost of transportation offers significant benefit to cardiac patients.

NKMC transfers a substantial number of ED and inpatients annually from its hospital who would benefit from the proposed interventional cardiac cath service. The high number of patients who must be transported to another facility for therapeutic cath services reflects the reliance of service area patients on NKMC for inpatient, outpatient, and emergency services. Moreover, the proposed Project requires a limited investment in additional equipment and no facility renovation or expansion that would require new construction.

Tennova Healthcare

As a physician currently on the staff of NKMC, I can unequivocally state this project would provide tremendous benefit to patients in the service area. Thank you for your consideration.

Regards,

YASIR AKHTAR

East Tennessee Heart Consultants

900 East Oak Hill Avenue
Suite 500 & 600
Knoxville, TN 37917
Phone: (865) 647-5800– Fax: (865) 525-0245

Y.N. Akhtar, M.D.
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Regards,

O.A. IRIVBOGBE MD

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M. Barb, PA-C | *E. Dickenson, PA-C*

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Dear Mr. Earhart,

I am writing this letter to show my support for the aforementioned project at North Knoxville Medical Center (NKMC). I am a Board-certified Interventional Cardiologist with 25+ of experience working in and caring for patients in the greater Knoxville area. I intend to provide interventional cardiac cath services at NKMC upon approval of this project.

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Tennova
Healthcare

As a physician currently on the staff of NKMC, I can unequivocally state this project would provide tremendous benefit to patients in the service area. Thank you for your consideration.

Regards,

Barry Michelson M.D.

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Knoxville, TN 37917
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As a physician currently on the staff of NKMC, I can unequivocally state this project would provide tremendous benefit to patients in the service area. Thank you for your consideration.

Regards,

Curt T. Dobson, MD, FACC

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Knoxville, TN 37917
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Tennova
Healthcare

As a physician currently on the staff of NKMC, I can unequivocally state this project would provide tremendous benefit to patients in the service area. Thank you for your consideration.

Regards, David A. [illegible] MD, FACC

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Expansion of existing diagnostic cardiac cath services to include interventional (therapeutic) cardiac cath services

Dear Mr. Earhart,

I am writing this letter to show my support for the aforementioned project at North Knoxville Medical Center (NKMC). I am a Board-certified Non-Interventionalist Cardiologist with 24 years of experience working in and caring for patients in the greater Knoxville area. I intend to provide non-interventional cardiac cath services at NKMC upon approval of this project.

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January 24, 2018

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502 Deaderick Street
Nashville, TN 37243

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Metro Knoxville HMA, LLC d/b/a Tennova Healthcare – North Knoxville Medical Center
Expansion of existing diagnostic cardiac cath services to include interventional (therapeutic) cardiac cath services

Dear Mr. Earhart,

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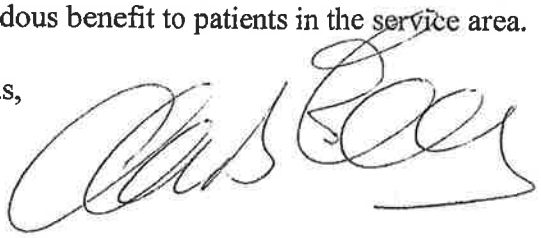
Tennova Healthcare

As a physician currently on the staff of NKMC, I can unequivocally state this project would provide tremendous benefit to patients in the service area. Thank you for your consideration.

Regards,



Attachment 3 – Supplemental Information

Physicians' Curriculum Vitae

Michelson, Barry I., M.D.

RESIDENCY

Chief Resident Internal Medicine 07/87 - 06/88

D.C. General Hospital
Georgetown Medical Service
19th St. and Massachusetts Avenue S.E.
Washington, D.C. 20003

FELLOWSHIP

Interventional Cardiology 07/91 - 06/92

University of Maryland Hospital
22 S. Greene Street
Baltimore, Maryland 21201

TEACHING APPOINTMENTS

Clinical Instructor in Medicine 07/87 - 06/88

Georgetown University School of Medicine
D.C. General Hospital
19th and Massachusetts Avenue S.E.
Washington, D.C. 20003

Assistant Instructor in Medicine 07/81 - 06/92

Division of Cardiology
University of Maryland School of Medicine
22 S. Greene Street
Baltimore, Maryland 21201

Michelson, Barry I., M.D.

REFERENCES

Andrew Ziskind, M.D.
Director Cardiac Catheterization Lab
University of Maryland Hospital
N3W77
22 S. Greene Street
Baltimore, Maryland 21201

Paul Gurbel, M.D.
Director of Interventional Cardiology
University of Maryland Hospital
N3W77
22 S. Greene Street
Baltimore, Maryland 21201

Robert Hobbs, M.D.
Desk F25
Cleveland Clinic Foundation
9500 Euclid Avenue
Cleveland, Ohio 44195

LICENSURE AND CERTIFICATION

Maryland	#D41549	April 8, 1991	Active
Ohio	#58237	May 19, 1989	Active
D.C.	#16634	June, 1987	Inactive
Virginia	#40313	October 31,1986	Active

Tennessee - Applied

AMA PHYSICIAN PROFILE

AMERICAN MEDICAL ASSOCIATION
535 NORTH DEARBORN STREET
CHICAGO, ILLINOIS 60610

DIVISION OF SURVEY AND DATA RESOURCES
DEPARTMENT OF PHYSICIAN DATA SERVICES

DATE: 06-28-89
TIME: 8:16 PM

NAME: COX,DAVID ALLAN, M.D.
ADDRESS: VANDERBILT UNIV MED CTR
NASHVILLE TN 37232
BIRTHPLACE: JOHNSON CITY,TN
BIRTHDATE: 04/29/56
MEMBER OF AMA: NOT MEMBER
MEDICAL SCHOOL
DUKE UNIV SCH OF MED, DUKE UNIV MED CTR, DURHAM NC 27710
YEAR OF GRADUATION: 1982
LICENSES (INITIAL YEAR GRANTED BY STATE):
MA 1986
NATIONAL BOARD CERTIFICATION: 1983
SPECIALTY BOARD CERTIFICATION: AMERICAN BOARD OF INTERNAL MEDICINE

PHYSICIAN'S PROFESSIONAL ACTIVITIES: RESIDENT
SELF DESIGNATED SPECIALTIES
PRIMARY: CARDIOVASCULAR DISEASES
SECONDARY: UNSPECIFIED
TERTIARY: UNSPECIFIED

CURRENT MEDICAL TRAINING:	NONE REPORTED TO DATE		
PRIOR MEDICAL TRAINING:	RESIDENT		
HOSPITAL:	BRIGHAM-WOMENS HOSP	BOSTON MA	02115
DATES OF TRAINING:	07/83-06/85 -- (CONFIRMED)		
SPECIALTY:	INTERNAL MEDICINE		
SPECIALTY:	UNSPECIFIED		
PRIOR MEDICAL TRAINING:	INTERN		
HOSPITAL:	BRIGHAM-WOMENS HOSP	BOSTON MA	02115
DATES OF TRAINING:	07/82-06/83 -- (CONFIRMED)		
SPECIALTY:	INTERNAL MEDICINE		
SPECIALTY:	UNSPECIFIED		
FELLOWSHIP: CLINICAL			
HOSPITAL:	BRIGHAM-WOMENS HOSP	BOSTON MA	02115
DATES OF TRAINING:	07/85-06/87 -- (CONFIRMED)		
SPECIALTY:	CARDIOVASCULAR DISEASES		
SPECIALTY:	UNSPECIFIED		

THE FOLLOWING IS HISTORICAL. CHECK WITH PRIMARY SOURCES FOR CURRENT STATUS:

NATIONAL SCIENTIFIC MEDICAL SOCIETIES: NONE REPORTED TO DATE

PROFESSORIAL APPOINTMENT: NONE REPORTED TO DATE

07

CURRICULUM VITAE

NAME:	CLINT THOMAS DOIRON, M. D.
ADDRESS:	532 Old Tavern Circle Knoxville, Tennessee 37919
PHONE:	(615) 966-1373
BIRTHDATE:	November 17, 1950
BIRTHPLACE:	Beaumont, Texas
FAMILY STATUS:	Married, wife, Kristine; children, Luke, Allyson, Ashley

MEDICAL EDUCATION

MEDICAL SCHOOL:	The University of Texas Medical Branch at Galveston, 1972-1976
POSTGRADUATE TRAINING:	Internship and Medical Residency at Scott and White Memorial Hospital and Texas A&M University Hospitals, 1976-1979. Cardiology Fellowship at Baylor University Medical Center, Dallas, Texas, 1979-1981.
BOARD CERTIFICATION:	American Board of Internal Medicine in 1979. American Board of Cardiology in 1982.
1981-82:	Private practice at Willis-Knighton Medical Center in Shreveport, Louisiana.
CURRENT STATUS:	Cardiologist, East Tennessee Heart Consultants, P.C., January, 1983

CTD/mec
1/26/83

Curriculum Vitae

References:

Michael Donsky, M.D., F.A.C.C.
Director, Invasive Laboratory
H.L. Hunt Heart Center
Baylor University Medical Center
3600 Gaston Avenue
Dallas, Texas 75246
Phone Number (214) 821-3333

Charles Gottlich, M.D., F.A.C.C.
Director, Non-invasive Laboratory
H.L. Hunt Heart Center
Baylor University Medical Center
3600 Gaston Avenue
Dallas, Texas 75246
Phone Number (214) 821-3333

Arthur Trowbridge, M.D.
Professor of Medicine
Division of Hematology and Oncology
Scott and White Memorial Hospital
2401 S. 31 Street
Temple, Texas 76501
Phone Number (817) 774-2111

James L. Matson, M.D.
H.L. Hunt Heart Center
Baylor University Medical Center
3600 Gaston Avenue
Dallas, Texas 75246
Phone Number (214) 821-3333

Academic Appointments: Associate Clinical Professor of Cardiology
Louisiana State University Medical School
Shreveport, Louisiana

CLINT T. DOIRON, M.D.

Continuing Medical Education

Bowman Gray School of Medicine
"Eleventh Beach Workshop"
08-01-83 to 08-05-83

Emory University School of Medicine
"Demonstrations in Percutaneous Angioplasty"
09-16-84 to 09-20-84

Attachment 4 – Supplemental Information

NKMC 2016 JAR Excerpt Documenting 1 Cardiac Cath Lab

SCHEDULE D - SERVICES (continued)

47352 - Tennova Healthcare North Knoxville Medical Center

Utilization of Selected Services

D. Cardiac:

Number of Cath Labs 1

Date Cardiac Cath Lab Initiated 05/27/2015

A Case shall mean one visit to a surgical, laboratory, or another procedure room by one patient, regardless of the number of procedures performed during that visit. (See CON standards)

***Note: Pediatric = a patient less than 18 years of age.**

	Is This Service Provided In Your Hospital? Yes	No	Inpatient Cath Lab Setting Unit of Measure	Number	Outpatient Cath Lab Setting Unit of Measure	Number
Diagnostic Cardiac Catheterization	●	○	Adult Cases	58	Adult Cases	21
			Pediatric Cases	0	Pediatric Cases	0
Therapeutic Cardiac Catheterization	○	●	Adult Cases		Adult Cases	
			Pediatric Cases		Pediatric Cases	
Electrophysiological (EP) Study						
Diagnostic EP Study	○	●	Adult Cases		Adult Cases	
			Pediatric Cases		Pediatric Cases	
Therapeutic EP Study	●	○	Adult Cases	7	Adult Cases	8
			Pediatric Cases	0	Pediatric Cases	0
Peripheral Vascular Catheterization						
Diagnostic Peripheral Vascular	●	○	Adult Cases	0	Adult Cases	5
			Pediatric Cases	0	Pediatric Cases	0
Therapeutic Peripheral Vascular	●	○	Adult Cases	0	Adult Cases	7
			Pediatric Cases	0	Pediatric Cases	0
Thrombolytic Therapy	○	●	Adult Cases		Adult Cases	
			Pediatric Cases		Pediatric Cases	

			To Inpatients	To Outpatients
Open Heart Surgery			*Note: Pediatric = a patient less than 15 years of age.	
# dedicated O.R.'s	○	●	Adult Cases	
			Pediatric Cases	

Supplemental #2 (Copy)

Metro Knoxville HMA, LLC dba Tennova Healthcare, North Knoxville Medical Center

CN1801-001

Supplemental #2
January 30, 2018

Tennova Healthcare

Supplemental Information #2
Certificate of Need Application CN1801-001
Metro Knoxville HMA, LLC d/b/a Tennova Healthcare - NKMC
Expansion of cardiac cath services to include interventional (therapeutic) cardiac cath services

Please see the following Supplemental Information #2 provided in response to the January 26, 2018 letter from Phillip M. Earhart, HSD Examiner, requesting clarification or additional information on the Certificate of Need Application CN1801-001 submitted to HSDA on January 10, 2018 and the previous Supplemental Information #1 submitted January 25th.

1. **Section A, Executive Summary, Item B.4 (Orderly Development) Page 7**

   The letters of support from cardiologists supporting the addition of interventional cardiac procedures at NKMC are noted. However, the signatures are not legible in the last two letters provided in the supplemental. Please provide revised copies of those two letters which clearly identifies the names of the signing physicians.

RESPONSE: The revised copies of the last two letters of support previously submitted are included in Attachment 1.

2. **Section B, Need, Item E, Page 36**

   Table 11 on page 36 indicating the service area cardiac cath lab utilization is noted. However, please clarify the reason(s) the 2016 Joint Annual Reports indicates 4 cath labs instead of 1 for Tennova Healthcare Turkey Creek Medical Center as reflected in table 11. If there is an error in the number of labs reported in table 11, please adjust the utilization in table 11 and submit a replacement page 36 (labeled as 36R).

   The explanation of the discrepancy of the cardiac cath equivalents total of 9,088 for Tennova Healthcare (PRMC) in table 11 to the reported cardiac cath utilization of 3,383 in the 2016 Joint Annual Report for PRMC is noted. However, the variance between these two numbers is greater than 5,000 procedures, whereas any other facility in the service area, the greatest variation was a little over 2,000. Additionally, if the CPT Code definition of cardiac catheterization now aligns with the categories in both the 2016 JAR and the Cardiac Catheterization Criteria, any of the "other heart procedures" referenced from earlier JARS would not be counted if they did not fall in to the categories of diagnostic/therapeutic cardiac catheterization, diagnostic/therapeutic peripheral vascular catheterization, or diagnostic/therapeutic electrophysiological studies. Even though one would expect to see differences in the data between the two different sources of discharge data vs. JAR self-reported data, it doesn't seem the variance should be as wide as what the applicant is reporting for Physicians Regional Medical Center. Is it possible that the PRMC cardiac cath equivalents total of 9,088 for PRMC included utilization from Tennova Turkey Creek and NKMC which appears to share the same license number? Please discuss in more detail.

RESPONSE: Please see the table below, and the Replacement page 36 in Attachment 2, reflecting the four (4) cath labs at Tennova Healthcare Turkey Creek Medical Center. As explained below, the utilization data for Tennova Healthcare's three Knoxville facilities (PRMC, Turkey Creek, and NKMC) is correct; thus, no changes were made to the reported hospitals' utilization data. The only change to Table 11 is the correction in the number of cath labs at Turkey Creek (from 1 to 4), which results in an overall service area utilization change from 123.2% to 109.5% - a number well in excess of the 70% utilization threshold.

NKMC has confirmed that the utilization data for PRMC does not include data for Turkey Creek or NKMC because each hospital's electronic patient-level data is submitted using the Centers for Medicare & Medicaid ("CMS") Uniform Bill ("UB-04") and includes the submitting hospital's unique State Identification Number. Thus, there is no duplication in the electronically submitted data by the Tennova hospitals.

The explanation for the discrepancy between the two reports (2016 Joint Annual Report and Tennessee Department of Health ("TDOH") cardiac cath calculations is due to the differences in reported data, and is based *primarily on the use of the highest weighted category in the TDOH's analyses*. For an advanced cardiology provider such as PRMC that has a high volume of complex interventional cases (with for example, an average of 3 procedure codes per therapeutic cardiac cath patient and 5-6 procedure codes per therapeutic peripheral vascular cath patient), the difference in the two reports is expected and reasonable. Notably, NKMC discussed the discrepancies between the two reports with staff at the Tennessee Department of Health, Division of Policy, Planning and Assessment to ensure that the data reported in the respective reports are accurate. Both John Brown, Statistical Research Specialist and Trent Sansing, Manager of JAR Data Collection Unit are confident that the calculated utilizations presented in the CON application are accurate, and the differences in the JAR and the utilization data are reasonable.

The replacement Table 11 reflects the TDOH's prior analyses with the correction to the number of Turkey Creek cath labs. NKMC has also provided TDOH staff members with the correction to the number of labs at Turkey Creek so that they are aware of the change.

Table 11 - Revised
Service Area Cardiac Cath Lab Utilization

Service Area Hospital	Cardiac Cath Equivalents*			Cath Labs	Utilization
	Diagnostic	Therapeutic	Total		
Methodist Medical Center of Oak Ridge	4,316.0	3,187.0	7,503.0	2	187.6%
Tennova Healthcare - LaFollette Medical Center	3.0	21.0	24.0	0	N/A
Tennova Healthcare - Newport Medical Center	0.0	6.0	6.0	0	N/A
Morristown - Hamblen Healthcare System	1,815.0	1,462.0	3,277.0	2	81.9%
Lakeway Regional Hospital	34.5	6.0	40.5	0	N/A
Tennova Healthcare - Jefferson Memorial Hospital	32.0	127.0	159.0	0	N/A
Fort Sanders Regional Medical Center	3,368.0	2,868.0	6,236.0	4	78.0%
Tennova Healthcare (PRMC)	3,716.0	5,372.0	9,088.0	3	151.5%
University of Tennessee Memorial Hospital	7,098.0	7,342.0	14,440.0	5	144.4%
Parkwest Medical Center	8,226.5	5,810.0	14,036.5	5	140.4%
Tennova Healthcare - Turkey Creek Med Center**	1,567.0	2,160.0	3,727.0	4	46.6%
Tennova Healthcare - North Knoxville Med Center	39.0	102.0	141.0	1	7.1%
LeConte Medical Center	437.5	11.0	448.5	1	22.4%
Total (Revised # of Labs)	**30,652.5**	**28,474.0**	**59,126.5**	**27**	**109.5%**
Capacity per Lab (defined by Standards)				2,000	
Total Capacity in Service Area				54,000	
Percent of Existing Services to Capacity (Revised)				**109.5%**	

Sources & Notes:
Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics; Certificate of Need Cardiac Cath Calculations based on 2009 State Health Plan Standards.
*Highest weighted cardiac cath services provided based on TDH Hospital Discharge Data System 2013-2015 recorded procedure level codes (CPT) and service categories.
**Correction to Turkey Creek cath labs from 1 lab to 4 labs, comprised of 1 dedicated EP Lab & 3 multipurpose labs.

3. Section B, Contribution to Orderly Development, Item E.2 Page 57

Please provide a copy of the press release from The United State Department of Justice dated Monday, August 4, 2014 (Press Release Number 14-822) that provides an overview of the allegations and resulting corporate integrity agreement referenced in the application. The press release may be found at the following web-site:
https://www.justice.gov/opa/pr/community-health-systems-inc-pay-9815-million-resolve-false-claims-act-allegations

RESPONSE: Please see Attachment 3.

Supplemental #2
January 30, 2018
11:05 A.M.

AFFIDAVIT

STATE OF TENNESSEE

COUNTY OF WILLIAMSON

NAME OF FACILITY: NORTH KNOXVILLE MEDICAL CENTER

I, Martin G. Schweinhart, President of Metro Knoxville HMA, LLC, after first being duly sworn, state under oath that I am the applicant named in this Certificate of Need application or the lawful agent thereof, that I have reviewed all of the supplemental information submitted herewith, and that it is true, accurate, and complete.

Signature/Title

Sworn to and subscribed before me, a Notary Public, this the 29th day of January, 2018, witness my hand at office in the County of Williamson, State of Tennessee.

NOTARY PUBLIC

My commission expires 9-16, 2019.

MARY ANN ECKMAN
STATE OF TENNESSEE NOTARY PUBLIC
WILLIAMSON COUNTY
My Commission Expires 09-16-2019

HF-0043

Revised 7/02

Supplemental #2
January 30, 2018
11:05 A.M.

Attachment 1 – Supplemental Information #2

Requested Physician Letters of Support with Name Added

Supplemental #2
January 30, 2018
11:05 A.M.

East Tennessee
Heart Consultants

900 East Oak Hill Avenue
Suite 500 & 600
Knoxville, TN 37917
Phone: (865) 647-5800– Fax: (865) 525-0245

Y.N. Akhtar, M.D.
R. Hottigoudar, M.D.
B.I. Michelson, MD., F.A.C.C
M. Barb, PA-C
F. A. Chaudhry, M.D., M.S., F.A.C.C.
O.I. Irivbogbe, M.D.
R.E. Rotondo, M.D., F.A.C.C.
E. Dickenson, PA-C
D.A. Cox, M.D., F.A.C.C.
R.O. Martin, M.D., F.A.C.C.
J.A. Ternay, M.D., F.A.C.C.
C.T. Doiron, M.D., F.A.C.C.
K.W. McCoy, M.D., F.A.C.C.
C.B. Treasure II, M.D., F.A.C.C.

January 24, 2018

Phillip M. Earhart, HSD Examiner
Tennessee Health Services and Development Agency
Andrew Jackson Building, 9th Floor
502 Deaderick Street
Nashville, TN 37243

RE: Certificate of Need Application CN1801-001
Metro Knoxville HMA, LLC d/b/a Tennova Healthcare – North Knoxville Medical Center
Expansion of existing diagnostic cardiac cath services to include interventional (therapeutic) cardiac cath services

Dear Mr. Earhart,

I am writing this letter to show my support for the aforementioned project at North Knoxville Medical Center (NKMC). I am a Board-certified Non-Interventionalist Cardiologist with 24 years of experience working in and caring for patients in the greater Knoxville area. I intend to provide non-interventional cardiac cath services at NKMC upon approval of this project.

The location of NKMC provides a more convenient, and accessible, point of service for patients in need of interventional cardiac procedures. The approval to provide therapeutic cardiac cath services in NKMC's existing diagnostic cardiac cath lab will provide a more immediately accessible point for patients to receive intervention, which will ultimately enhance patient's quality of care since 'time is muscle'. As the provision of therapeutic cardiac caths without on-site OHS backup has become an accepted standard within the medical community, the ability to provide this care in a timelier manner and without the additional cost of transportation offers significant benefit to cardiac patients.

NKMC transfers a substantial number of ED and inpatients annually from its hospital who would benefit from the proposed interventional cardiac cath service. The high number of patients who must be transported to another facility for therapeutic cath services reflects the reliance of service area patients on NKMC for inpatient, outpatient, and emergency services. Moreover, the proposed Project requires a limited investment in additional equipment and no facility renovation or expansion that would require new construction.

As a physician currently on the staff of NKMC, I can unequivocally state this project would provide tremendous benefit to patients in the service area. Thank you for your consideration.

Regards,

Kyle McCoy, MD, FACC

Tennova
Healthcare

Supplemental #2
January 30, 2018
11:05 A.M.

East Tennessee Heart Consultants

900 East Oak Hill Avenue
Suite 500 & 600
Knoxville, TN 37917
Phone: (865) 647-5800– Fax: (865) 525-0245

Y.N. Akhtar, M.D. *F. A. Chaudhry, M.D., M.S., F.A.C.C.* *D.A. Cox, M.D., F.A.C.C.* *C.T. Doiron, M.D., F.A.C.C.*
R. Hottigoudar, M.D. *O.I. Irivbogbe, M.D.* *R.O. Martin, M.D., F.A.C.C.* *K.W. McCoy, M.D., F.A.C.C.*
B.I. Michelson, MD., F.A.C.C *R.E. Rotondo, M.D., F.A.C.C.* *J.A. Ternay, M.D., F.A.C.C.* *C.B. Treasure II, M.D., F.A.C.C.*
M. Barb, PA-C *E. Dickenson, PA-C*

January 24, 2018

Phillip M. Earhart, HSD Examiner
Tennessee Health Services and Development Agency
Andrew Jackson Building, 9th Floor
502 Deaderick Street
Nashville, TN 37243

RE: Certificate of Need Application CN1801-001
Metro Knoxville HMA, LLC d/b/a Tennova Healthcare – North Knoxville Medical Center
Expansion of existing diagnostic cardiac cath services to include interventional (therapeutic) cardiac cath services

Dear Mr. Earhart,

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The location of NKMC provides a more convenient, and accessible, point of service for patients in need of interventional cardiac procedures. The approval to provide therapeutic cardiac cath services in NKMC's existing diagnostic cardiac cath lab will provide a more immediately accessible point for patients to receive intervention, which will ultimately enhance patient's quality of care since 'time is muscle'. As the provision of therapeutic cardiac caths without on-site OHS backup has become an accepted standard within the medical community, the ability to provide this care in a timelier manner and without the additional cost of transportation offers significant benefit to cardiac patients.

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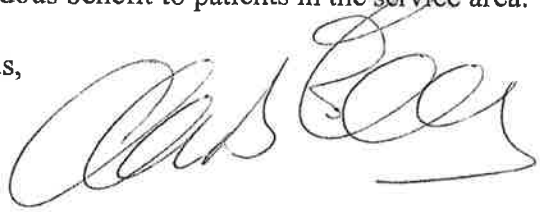
Tennova Healthcare

As a physician currently on the staff of NKMC, I can unequivocally state this project would provide tremendous benefit to patients in the service area. Thank you for your consideration.

Regards,



Charles Treasure, MD, FACC

Attachment 3 – Supplemental Information #2

Press Release from the U.S. Department of Justice

JUSTICE NEWS

Department of Justice

Office of Public Affairs

FOR IMMEDIATE RELEASE

Monday, August 4, 2014

Community Health Systems Inc. to Pay $98.15 Million to Resolve False Claims Act Allegations

The Justice Department announced today that Community Health Systems Inc. (CHS), the nation's largest operator of acute care hospitals, has agreed to pay $98.15 million to resolve multiple lawsuits alleging that the company knowingly billed government health care programs for inpatient services that should have been billed as outpatient or observation services. The settlement also resolves allegations that one of the company's affiliated hospitals, Laredo Medical Center (LMC), improperly billed the Medicare program for certain inpatient procedures and for services rendered to patients referred in violation of the Physician Self-Referral Law, commonly known as the Stark Law. CHS is based in Franklin, Tennessee, and has 206 affiliated hospitals in 29 states.

"Charging the government for higher cost inpatient services that patients do not need wastes the country's health care resources," said Assistant Attorney General Stuart F. Delery for the Justice Department's Civil Division. "In addition, providing physicians with financial incentives to refer patients compromises medical judgment and risks depriving patients of the most appropriate health care available. This department will continue its work to stop this type of abuse of the nation's health care resources and to ensure patients receive the most appropriate care."

The United States alleged that from 2005 through 2010, CHS engaged in a deliberate corporate-driven scheme to increase inpatient admissions of Medicare, Medicaid and the Department of Defense's (DOD) TRICARE program beneficiaries over the age of 65 who originally presented to the emergency departments at 119 CHS hospitals. The government further alleged that the inpatient admission of these beneficiaries was not medically necessary, and that the care needed by, and provided to, these beneficiaries should have been provided in a less costly outpatient or observation setting. CHS agreed to pay $89.15 million to resolve these allegations. The settlement does not include hospitals that CHS acquired from Health Management Associates (HMA) in January 2014.

In addition, the government alleged that from 2005 through 2010, one of CHS's affiliated hospitals, LMC in Laredo, Texas, presented false claims to the Medicare program for certain cardiac and hemodialysis procedures performed on a higher cost inpatient basis that should have been performed on a lower cost outpatient basis. The government also alleged that from 2007 through 2012, LMC improperly billed Medicare for services referred to LMC by a physician who was offered a medical directorship at LMC, in

violation of the Stark Law. The Stark Law prohibits a hospital from submitting claims for patient referrals made by a physician with whom the hospital has an improper financial relationship, and is intended to ensure that a physician's medical judgment is not compromised by improper financial incentives, and is instead based on the best interests of the patient. CHS agreed to pay $9 million to resolve the allegations involving LMC.

"This is the largest False Claims Act settlement in this district and it reaffirms this office's commitment to investigate and pursue health care fraud that compromises the integrity of our health care system," said U.S. Attorney David Rivera for the Middle District of Tennessee. "This office is committed to ensuring that all companies billing government healthcare programs are responsible corporate citizens and that hospital providers do not engage in schemes to increase medically unnecessary in-patient admissions of government healthcare program beneficiaries in order to increase profits."

"This settlement demonstrates our commitment to working with our law enforcement partners and with the Department of Justice to protect the integrity of our nation's health care system," said U.S. Attorney Kenneth Magidson of the Southern District of Texas. "Put simply, these types of fraudulent practices will not be tolerated and the investigation and resolution of such claims will continue to be a high priority of this office."

"Health care providers should make treatment decisions based on patients' medical needs, not profit margins," said U.S. Attorney Anne M. Tompkins for the Western District of North Carolina. "We will not allow this type of misconduct to compromise the integrity of our health care system."

As part of today's agreement, CHS entered into a Corporate Integrity Agreement with the U.S. Department of Health and Human Services - Office of Inspector General (HHS-OIG), requiring the company to engage in significant compliance efforts over the next five years. Under the agreement, CHS is required to retain independent review organizations to review the accuracy of the company's claims for inpatient services furnished to federal health care program beneficiaries.

"In an effort to ensure the company's fraudulent past is not its future, CHS agreed to a rigorous multi-year Corporate Integrity Agreement requiring that the company commit to compliance with the law," said Inspector General Daniel R. Levinson, of the U.S. Department of Health and Human Services. "The dedicated work of OIG's investigators, auditors, and attorneys, in concert with our law enforcement partners, has again resulted in the recovery of taxpayer dollars and better protection against fraud in the future."

The settlement resolves lawsuits filed by several whistleblowers under the *qui tam* provisions of the False Claims Act, which permit private parties to file suit on behalf of the government and obtain a portion of the government's recovery. Those relators are Kathleen Bryant, former Director of Health Information Management at CHS's Heritage Medical Center in Shelbyville, Tennessee; Rachel Bryant, former nurse at CHS's Dyersburg Hospital in Dyersburg, Tennessee; Bryan Carnithan, former Emergency Medical Services

Coordinator at CHS' Heartland Hospital in Marion, Illinois; Amy Cook-Reska, former coder for CHS' LMC in Laredo; Sheree Cook, former nurse at CHS's Heritage Medical Center in Shelbyville; James Doghramji, former internal medicine and emergency room physician at CHS's Chestnut Hill Hospital in Philadelphia; Thomas Mason, former emergency room physician at Lake Norman Regional Medical Center in Mooresville, North Carolina; Scott Plantz, former emergency room physician at CHS's Longview Regional Medical Center in Longview, Texas; and Nancy Reuille, former nurse and Supervisor of Case Management at CHS's Lutheran Hospital in Fort Wayne, Indiana. The relators' share of the settlement has not yet been determined.

This settlement illustrates the government's emphasis on combating health care fraud and marks another achievement for the Health Care Fraud Prevention and Enforcement Action Team (HEAT) initiative, which was announced in May 2009 by Attorney General Eric Holder and the Secretary of Health and Human Services. The partnership between the two departments has focused efforts to reduce and prevent Medicare and Medicaid financial fraud through enhanced cooperation. One of the most powerful tools in this effort is the False Claims Act. Since January 2009, the Justice Department has recovered a total of more than $20.2 billion through False Claims Act cases, with more than $14 billion of that amount recovered in cases involving fraud against federal health care programs.

This settlement was the result of a coordinated effort by the U.S. Attorney's Offices for the Middle District of Tennessee, Southern District of Texas, Northern and Southern Districts of Illinois, Northern District of Indiana and Western District of North Carolina; the Civil Division's Commercial Litigation Branch; HHS-OIG; DOD's Defense Health Agency - Program Integrity Office and the FBI.

The lawsuits are captioned *United States ex rel. Bryant v. Community Health Systems, Inc., et al.*, Case No. 10-2695 (S.D. Tex.); *United States ex rel. Carnithan v. Community Health Systems, Inc., et al.*, Case No. 11-cv-312 (S.D. Ill.); *United States ex rel. Cook-Reska v. Community Health Systems, Inc., et al.*, Case No. 4:09-cv01565 (S.D. Tex.); *United States ex rel. James Doghramji; Sheree Cook; and Rachel Bryant v. Community Health Systems Inc., et al.*, Case No. 3-11-cv-00442 (M.D. Tenn.); *United States ex rel. Mason v. Community Health Systems, Inc., et al.*, Case No. 3:12-cv-817 (W.D.N.C.); *United States ex rel. Plantz v. Community Health Systems, Inc., et al.*, Case No. 10C-0959 (N.D. Ill.); *United States ex rel. Reuille v. Community Health Systems Professional Services Corporation, et al.*, Case No. 1:09-cv-007RL (N.D. Ind.). The claims resolved by this agreement are allegations only and there has been no determination of liability.

Component(s):
Civil Division

Press Release Number:
14-822

Updated September 15, 2014

State of Tennessee
Health Services and Development Agency
Andrew Jackson Building, 9th Floor
502 Deaderick Street
Nashville, TN 37243
www.tn.gov/hsda Phone: 615-741-2364 Fax: 615-741-9884

JAN 9 '18 AM 10:51

LETTER OF INTENT

The Publication of Intent is to be published in the **Knoxville News Sentinel** (Name of Newspaper) which is a newspaper of general circulation in **Knox County** (County), Tennessee, on or before **January 9** (Month / day), **2018** (Year), for one day.

~~This is to provide official notice to the Health Services and Development Agency and all interested parties,~~ In accordance with T.C.A. § 68-11-1601 *et seq.*, and the Rules of the Health Services and Development Agency, that: **Metro Knoxville HMA, LLC, d/b/a Tennova Healthcare, North Knoxville Medical Center** (Name of Applicant) **Hospital** (Facility Type - Existing) owned by: **Metro Knoxville HMA Holdings, LLC d/b/a Tennova Healthcare** with an ownership type of **Limited Liability Corporation** and to be managed by: **Metro Knoxville HMA Holdings, LLC, d/b/a Tennova Healthcare** intends to file an application for a Certificate of Need for: **the expansion of the existing diagnostic cardiac catheterization services at Tennova Healthcare – North Knoxville Medical Center campus, 7565 Dannaher Drive, Powell, TN 37849 to include interventional (therapeutic) cardiac catheterization services. The project involves no construction or renovation as the interventional cardiac cath services will be provided in the existing cardiac catheterization/vascular lab. The licensed bed complement will not be affected by this proposal. The estimated total project cost is $227,225.**

The anticipated date of filing the application is: **January 10, 2018**

The contact person for this project is **Clyde Wood** (Contact Name) **CEO** (Title)

who may be reached at: **Tennova Healthcare-North Knoxville** (Company Name) **7565 Dannaher Drive** (Address)

Powell (City)	**Tennessee** (State)	**37849** (Zip Code)	**865.859.1205** (Area Code / Phone Number)
Clyde Wood (Signature)	01/02/2018 (Date)		**clyde.wood@tennova.com** (E-mail Address)

The Letter of Intent must be filed in triplicate and received between the first and the tenth day of the month. If the last day for filing is a Saturday, Sunday or State Holiday, filing must occur on the preceding business day. File this form at the following address:

Health Services and Development Agency
Andrew Jackson Building, 9th Floor
502 Deaderick Street
Nashville, Tennessee 37243

The published Letter of Intent must contain the following statement pursuant to T.C.A. § 68-11-1607(c)(1). (A) Any health care institution wishing to oppose a Certificate of Need application must file a written notice with the Health Services and Development Agency no later than fifteen (15) days before the regularly scheduled Health Services and Development Agency meeting at which the application is originally scheduled; and (B) Any other person wishing to oppose the application must file written objection with the Health Services and Development Agency at or prior to the consideration of the application by the Agency.

State of Tennessee
Health Services and Development Agency
Andrew Jackson Building, 9th Floor
502 Deaderick Street
Nashville, TN 37243
www.tn.gov/hsda Phone: 615-741-2364 Fax: 615-741-9884

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LETTER OF INTENT

The Publication of Intent is to be published in the **Knoxville News Sentinel** (Name of Newspaper) which is a newspaper of general circulation in **Knox County** (County), Tennessee, on or before **January 9** (Month / day), **2018** (Year), for one day.

~~This is to provide official notice to the Health Services and Development Agency and all interested parties, in~~ accordance with T.C.A. § 68-11-1601 *et seq.*, and the Rules of the Health Services and Development Agency, that: **Metro Knoxville HMA, LLC, d/b/a Tennova Healthcare, North Knoxville Medical Center** (Name of Applicant) **Hospital** (Facility Type - Existing) owned by: **Metro Knoxville HMA Holdings, LLC d/b/a Tennova Healthcare** with an ownership type of **Limited Liability Corporation** and to be managed by: **Metro Knoxville HMA Holdings, LLC, d/b/a Tennova Healthcare** intends to file an application for a Certificate of Need for: **the expansion of the existing diagnostic cardiac catheterization services at Tennova Healthcare – North Knoxville Medical Center campus, 7565 Dannaher Drive, Powell, TN 37849 to include interventional (therapeutic) cardiac catheterization services. The project involves no construction or renovation as the interventional cardiac cath services will be provided in the existing cardiac catheterization/vascular lab. The licensed bed complement will not be affected by this proposal. The estimated total project cost is $227,225.**

The anticipated date of filing the application is: **January 10, 2018**

The contact person for this project is **Clyde Wood** (Contact Name), **CEO** (Title)

who may be reached at: **Tennova Healthcare-North Knoxville** (Company Name), **7565 Dannaher Drive** (Address)

Powell (City)	**Tennessee** (State)	**37849** (Zip Code)	**865.859.1205** (Area Code / Phone Number)
Clyde Wood (Signature)		01/02/2018 (Date)	**clyde.wood@tennova.com** (E-mail Address)

The Letter of Intent must be filed in triplicate and received between the first and the tenth day of the month. If the last day for filing is a Saturday, Sunday or State Holiday, filing must occur on the preceding business day. File this form at the following address:

Health Services and Development Agency
Andrew Jackson Building, 9th Floor
502 Deaderick Street
Nashville, Tennessee 37243

The published Letter of Intent must contain the following statement pursuant to T.C.A. § 68-11-1607(c)(1). (A) Any health care institution wishing to oppose a Certificate of Need application must file a written notice with the Health Services and Development Agency no later than fifteen (15) days before the regularly scheduled Health Services and Development Agency meeting at which the application is originally scheduled; and (B) Any other person wishing to oppose the application must file written objection with the Health Services and Development Agency at or prior to the consideration of the application by the Agency.

RULES
OF
HEALTH SERVICES AND DEVELOPMENT AGENCY

CHAPTER 0720-11
CERTIFICATE OF NEED PROGRAM – GENERAL CRITERIA

TABLE OF CONTENTS

0720-11-.01 GENERAL CRITERIA FOR CERTIFICATE OF NEED. The Agency will consider the following general criteria in determining whether an application for a certificate of need should be granted:

(1) Need. The health care needed in the area to be served may be evaluated upon the following factors:

(a) The relationship of the proposal to any existing applicable plans;

(b) The population served by the proposal;

(c) The existing or certified services or institutions in the area;

(d) The reasonableness of the service area;

(e) The special needs of the service area population, including the accessibility to consumers, particularly women, racial and ethnic minorities, TennCare participants, and low-income groups;

(f) Comparison of utilization/occupancy trends and services offered by other area providers;

(g) The extent to which Medicare, Medicaid, TennCare, medically indigent, charity care patients and low income patients will be served by the project. In determining whether this criteria is met, the Agency shall consider how the applicant has assessed that providers of services which will operate in conjunction with the project will also meet these needs.

(2) Economic Factors. The probability that the proposal can be economically accomplished and maintained may be evaluated upon the following factors:

(a) Whether adequate funds are available to the applicant to complete the project;

(b) The reasonableness of the proposed project costs;

(c) Anticipated revenue from the proposed project and the impact on existing patient charges;

(d) Participation in state/federal revenue programs;

(e) Alternatives considered; and

(f) The availability of less costly or more effective alternative methods of providing the benefits intended by the proposal.

(Rule 0720-11-.01, continued)

(3) Quality. Whether the proposal will provide health care that meets appropriate quality standards may be evaluated upon the following factors:

(a) Whether the applicant commits to maintaining an actual payor mix that is comparable to the payor mix projected in its CON application, particularly as it relates to Medicare, TennCare/Medicaid, Charity Care, and the Medically Indigent;

(b) Whether the applicant commits to maintaining staffing comparable to the staffing chart presented in its CON application;

(c) Whether the applicant will obtain and maintain all applicable state licenses in good standing;

(d) Whether the applicant will obtain and maintain TennCare and Medicare certification(s), if participation in such programs was indicated in the application;

(e) Whether an existing healthcare institution applying for a CON has maintained substantial compliance with applicable federal and state regulation for the three years prior to the CON application. In the event of non-compliance, the nature of non-compliance and corrective action shall be considered;

(f) Whether an existing health care institution applying for a CON has been decertified within the prior three years. This provision shall not apply if a new, unrelated owner applies for a CON related to a previously decertified facility;

(g) Whether the applicant will participate, within 2 years of implementation of the project, in self-assessment and external peer assessment processes used by health care organizations to accurately assess their level of performance in relation to established standards and to implement ways to continuously improve.

1. This may include accreditation by any organization approved by Centers for Medicare and Medicaid Services (CMS) and other nationally recognized programs. The Joint Commission or its successor, for example, would be acceptable if applicable. Other acceptable accrediting organizations may include, but are not limited to, the following:

(i) Those having the same accrediting standards as the licensed hospital of which it will be a department, for a Freestanding Emergency Department;

(ii) Accreditation Association for Ambulatory Health Care, and where applicable, American Association for Accreditation of Ambulatory Surgical Facilities, for Ambulatory Surgical Treatment Center projects;

(iii) Commission on Accreditation of Rehabilitation Facilities (CARF), for Comprehensive Inpatient Rehabilitation Services and Inpatient Psychiatric projects;

(iv) American Society of Therapeutic Radiation and Oncology (ASTRO), the American College of Radiology (ACR), the American College of Radiation Oncology (ACRO), National Cancer Institute (NCI), or a similar accrediting authority, for Megavoltage Radiation Therapy projects;

(v) American College of Radiology, for Positron Emission Tomography, Magnetic Resonance Imaging and Outpatient Diagnostic Center projects;

(Rule 0720-11-.01, continued)

(vi) Community Health Accreditation Program, Inc., Accreditation Commission for Health Care, or another accrediting body with deeming authority for hospice services from CMS or state licensing survey, and/or other third party quality oversight organization, for Hospice projects;

(vii) Behavioral Health Care accreditation by the Joint Commission for Nonresidential Substitution Based Treatment Center, for Opiate Addiction projects;

(viii) American Society of Transplantation or Scientific Registry of Transplant Recipients, for Organ Transplant projects;

(ix) Joint Commission or another appropriate accrediting authority recognized by CMS, or other nationally recognized accrediting organization, for a Cardiac Catheterization project that is not required by law to be licensed by the Department of Health;

(x) Participation in the National Cardiovascular Data Registry, for any Cardiac Catheterization project;

(xi) Participation in the National Burn Repository, for Burn Unit projects;

(xii) Community Health Accreditation Program, Inc., Accreditation Commission for Health Care, and/or other accrediting body with deeming authority for home health services from CMS and participation in the Medicare Quality Initiatives, Outcome and Assessment Information Set, and Home Health Compare, or other nationally recognized accrediting organization, for Home Health projects; and

(xiii) Participation in the National Palliative Care Registry, for Hospice projects.

(h) For Ambulatory Surgical Treatment Center projects, whether the applicant has estimated the number of physicians by specialty expected to utilize the facility, developed criteria to be used by the facility in extending surgical and anesthesia privileges to medical personnel, and documented the availability of appropriate and qualified staff that will provide ancillary support services, whether on- or off-site.

(i) For Cardiac Catheterization projects:

1. Whether the applicant has documented a plan to monitor the quality of its cardiac catheterization program, including but not limited to, program outcomes and efficiencies;

2. Whether the applicant has agreed to cooperate with quality enhancement efforts sponsored or endorsed by the State of Tennessee, which may be developed per Policy Recommendation; and

3. Whether the applicant will staff and maintain at least one cardiologist who has performed 75 cases annually averaged over the previous 5 years (for an adult program), and 50 cases annually averaged over the previous 5 years (for a pediatric program).

(j) For Open Heart projects:

1. Whether the applicant will staff with the number of cardiac surgeons who will perform the volume of cases consistent with the State Health Plan (annual average of the previous 2 years), and whether the applicant will maintain this volume in the future;

2. Whether the applicant will staff and maintain at least one surgeon with 5 years of experience;

3. Whether the applicant will participate in a data reporting, quality improvement, outcome monitoring, and peer review system that benchmarks outcomes based on national norms, with such a system providing for peer review among professionals practicing in facilities and programs other than the applicant hospital (demonstrated active participation in the STS National Database is expected and shall be considered evidence of meeting this standard);

(k) For Comprehensive Inpatient Rehabilitation Services projects, whether the applicant will have a board-certified physiatrist on staff (preferred);

(l) For Home Health projects, whether the applicant has documented its existing or proposed plan for quality data reporting, quality improvement, and an outcome and process monitoring system;

(m) For Hospice projects, whether the applicant has documented its existing or proposed plan for quality data reporting, quality improvement, and an outcome and process monitoring system;

(n) For Megavoltage Radiation Therapy projects, whether the applicant has demonstrated that it will meet the staffing and quality assurance requirements of the American Society of Therapeutic Radiation and Oncology (ASTRO), the American College of Radiology (ACR), the American College of Radiation Oncology (ACRO), National Cancer Institute (NCI), or a similar accrediting authority;

(o) For Neonatal Intensive Care Unit projects, whether the applicant has documented its existing or proposed plan for data reporting, quality improvement, and outcome and process monitoring system; whether the applicant has documented the intention and ability to comply with the staffing guidelines and qualifications set forth by the Tennessee Perinatal Care System Guidelines for Regionalization, Hospital Care Levels, Staffing and Facilities; and whether the applicant will participate in the Tennessee Initiative for Perinatal Quality Care (TIPQC);

(p) For Nursing Home projects, whether the applicant has documented its existing or proposed plan for data reporting, quality improvement, and outcome and process monitoring systems, including in particular details on its Quality Assurance and Performance Improvement program. As an alternative to the provision of third party accreditation information, applicants may provide information on any other state, federal, or national quality improvement initiatives;

(q) For Inpatient Psychiatric projects:

1. Whether the applicant has demonstrated appropriate accommodations for patients (e.g., for seclusion/restraint of patients who present management problems and children who need quiet space; proper sleeping and bathing arrangements for all patients), adequate staffing (i.e., that each unit will be staffed with at least two direct patient care staff, one of which shall be a nurse, at all

times), and how the proposed staffing plan will lead to quality care of the patient population served by the project;

2. Whether the applicant has documented its existing or proposed plan for data reporting, quality improvement, and outcome and process monitoring system; and

3. Whether an applicant that owns or administers other psychiatric facilities has provided information on satisfactory surveys and quality improvement programs at those facilities.

(r) For Freestanding Emergency Department projects, whether the applicant has demonstrated that it will satisfy and maintain compliance with standards in the State Health Plan;

(s) For Organ Transplant projects, whether the applicant has demonstrated that it will satisfy and maintain compliance with standards in the State Health Plan; and

(t) For Relocation and/or Replacement of Health Care Institution projects:

1. For hospital projects, Acute Care Bed Need Services measures are applicable; and

2. For all other healthcare institutions, applicable facility and/or service specific measures are applicable.

(u) For every CON issued on or after the effective date of this rule, reporting shall be made to the Health Services and Development Agency each year on the anniversary date of implementation of the CON, on forms prescribed by the Agency. Such reporting shall include an assessment of each applicable volume and quality standard and shall include results of any surveys or disciplinary actions by state licensing agencies, payors, CMS, and any self-assessment and external peer assessment processes in which the applicant participates or participated within the year, which are relevant to the health care institution or service authorized by the certificate of need. The existence and results of any remedial action, including any plan of correction, shall also be provided.

(v) HSDA will notify the applicant and any applicable licensing agency if any volume or quality measure has not been met.

(w) Within one month of notification the applicant must submit a corrective action plan and must report on the progress of the plan within one year of that submission.

(4) Contribution to the Orderly Development of Adequate and Effective Healthcare Facilities and/or Services. The contribution which the proposed project will make to the orderly development of an adequate and effective health care system may be evaluated upon the following factors:

(a) The relationship of the proposal to the existing health care system (for example: transfer agreements, contractual agreements for health services, the applicant's proposed TennCare participation, affiliation of the project with health professional schools);

(b) The positive or negative effects attributed to duplication or competition; and

(Rule 0720-11-.01, continued)

(c) The availability and accessibility of human resources required by the proposal, including consumers and related providers.

(5) Applications for Change of Site. When considering a certificate of need application which is limited to a request for a change of site for a proposed new health care institution, The Agency may consider, in addition to the foregoing factors, the following factors:

(a) Need. The applicant should show the proposed new site will serve the health care needs in the area to be served at least as well as the original site. The applicant should show that there is some significant legal, financial, or practical need to change to the proposed new site.

(b) Economic factors. The applicant should show that the proposed new site would be at least as economically beneficial to the population to be served as the original site.

(c) Quality of Health Care to be provided. The applicant should show the quality of health care to be provided will be served at least as well as the original site.

(d) Contribution to the orderly development of health care facilities and/or services. The applicant should address any potential delays that would be caused by the proposed change of site, and show that any such delays are outweighed by the benefit that will be gained from the change of site by the population to be served.

(6) Certificate of need conditions. In accordance with T.C.A. § 68-11-1609, The Agency, in its discretion, may place such conditions upon a certificate of need it deems appropriate and enforceable to meet the applicable criteria as defined in statute and in these rules.

Authority: *T.C.A. §§ 4-5-202, 4-5-208, 68-11-1605, 68-11-1609, and 2016 Tenn. Pub. Acts Ch. 1043.* ***Administrative History:*** *Original rule filed August 31, 2005; effective November 14, 2005. Emergency rule filed May 31, 2017; effective through November 27, 2017.*

CERTIFICATE OF NEED
REVIEWED BY THE DEPARTMENT OF HEALTH
Division of Policy, Planning and Assessment
Office of Health Statistics
615-741-1954

DATE: March 31, 2018

APPLICANT: Metro Knoxville HMA, LLC
D/b/a Tennova Healthcare, North Knoxville Medical Center
7565 Dannahar Drive
Powell, Tennessee 37849

CON# 1801-001

CONTACT PERSON: Clyde Wood, CEO
Tennova Healthcare
7565 Dannahar Drive
Powell, Tennessee 37849

COST: $227,225

In accordance with Section 68-11-1608(a) of the Tennessee Health Services and Planning Act of 2002, the Tennessee Department of Health, Division of Health Statistics, reviewed this certificate of need application for financial impact, TennCare participation, compliance with *Tennessee's Health: Guidelines for Growth, 2000 Edition*, and verified certain data. Additional clarification or comment relative to the application is provided, as applicable, under the heading "Note to Agency Members."

SUMMARY:

The applicant, Metro Knoxville HMA, LLC, d/b/a Tennova Healthcare-North Knoxville Medical Center (NKMC), seeks Certificate of Need (CON) approval for the expansion of cardiac catheterization services to include the existing diagnostic category as well as initiating therapeutic cardiac catheterization services. Services will be performed at the hospital located on the Tennova Health Care-North Knoxville Medical Center campus, 7565 Dannahar Drive, Powell (Knox County), Tennessee 37849. North Knoxville Medical Center is a satellite location of Metro Knoxville HMA, LLC d/b/a Tennova Healthcare. Tennova Healthcare provides acute care at three locations in the metro Knoxville area: Physicians Reginal Medical Center, North Knoxville Medical Center, and Turkey Creek Medical Center. Metro Knoxville HMA LLC is wholly owned and operated by Health Management Associates, LLC, with its home office in Naples, Florida.

The project involves no construction or renovation, and no inpatient beds are involved in this project.

In January 2013, NKMC was granted CON approval under CN1211-056 for the implementation of diagnostic cardiac catheterization services within a single cath lab.

The total cost of the project is $227,225. This is a capital investment with no renovation or construction needed. Only the costs to modernize the existing cath lab equipment are required. Project funding will be through cash reserves, with funding letters provided in Attachment B-Economic Feasibility –B.

GENERAL CRITERIA FOR CERTIFICATE OF NEED

The applicant responded to all of the general criteria for Certificate of Need as set forth in the document *Tennessee's Health: Guidelines for Growth, 2000 Edition*.

NEED:

North Knoxville Medical Center is a 108 acute care hospital located in Knox County, TN. The applicants' service area includes Anderson, Campbell, Claiborne, Cocke, Grainger, Hamblen, Jefferson, Knox, Scott, Sevier, and Union counties. According to the 2016 Joint Annual Report for Hospitals, approximately 98% of all NKMC patients reside in the service area. The following chart illustrates the service area total population projections for 2018 and 2020.

Service Area Total Population Projections for 2018 and 2020

County	2018 Population	2020 Population	% Increase/
Anderson	78,387	79,061	0.9%
Campbell	41,654	41,787	0.3%
Claiborne	34,263	34,713	1.3%
Cocke	37,335	37,663	0.9%
Grainger	24,244	24,577	1.4%
Hamblen	66,195	67,028	1.3%
Jefferson	57,073	58,372	2.3%
Knox	477,780	488,993	2.3%
Scott	23,058	23,224	0.7%
Sevier	104,82	108,46	3.5%
Union	20,124	20,320	1.0%
Total	964,942	984,206	2.0%

Source: The University of Tennessee Center for Business and Economic Research Population Projection Data Files, Reassembled by the Tennessee Department of Health, Division of Policy, Planning and Assessment. 2017 Revised UTCBER Population Projection Series.

2016 Service Area Catheterization Case Volume in the Proposed Service Area

State ID	Facility	# of Cath Labs	Total Diagnostic and Therapeutic	Cases Per Lab	
47242	Tennova Phys Reg Med Ctr	4	2450	613	
47352	**Tennova-North Knoxville**	**1**	**79**	**79**	
47332	Tennova Turkey Creek	4*	1975	494	
47212	Ft. Sanders Regional	4	3894	974	
47322	Parkwest Medical Center	5	9222	1844	
01202	Methodist Oak Ridge	2	3628	1814	
32242	Morristown Hamblen	2	1735	867	
78232	LeConte Medical Center	1	275	275	
47282	U.T. Medical Center	5	3564	713	
	Total Average Volume				

Source: 2016 Joint Annual Reports for Hospitals

The applicant reports in the Joint Annual Reports for Hospitals 2015 that diagnostic services were initiated on 5/27/2015 and reported 0 diagnostic cases for the 2015 report. The applicant reports in the Joint Annual Reports for Hospitals 2016 performing 79 diagnostic cases.

NKMC addresses their limited diagnostic volumes due to emergent patients requiring interventional care and scheduled diagnostic patients with the probability of needing interventional care are better served at the two Knox County campuses that perform therapeutic exams, PRMC and Turkey Creek. Emergency patients that likely need interventional care are transported to the other campuses, bypassing the NKMC location. NKMC transfers a high number of patients to its other campuses for interventional care, reflecting the need for therapeutic capabilities for the patients in the NKMC service area. Moreover the outlying rural areas served by NKMC have higher than state average for heart disease, death rates, lower income and elderly populations.

Additionally, the lack of therapeutic capabilities negatively impacts cath lab patient volumes and, less than optimal exam volumes result in multi-level inefficiencies. Fixed costs are increased and staff procedure experience and training decline with lower volumes. The ability to provide both diagnostic and therapeutic exams would reduce the need to transfer patients out resulting in higher overall exam volumes.

TENNCARE/MEDICARE ACCESS:

Tennova Healthcare is in network with all TennCare MCOs in the service area.
Medicare # 44-0120 Medicaid # 44-0120

ECONOMIC FACTORS/FINANCIAL FEASIBILITY:

The total estimated project cost is $227,225 and will be funded through cash reserves as documented in funding letters provided in Attachment B-Economic Feasibility –B.

Project Costs Chart:

The Projected Costs Chart is located on page 39 of the application detailing a total projected cost of $227,225, and the largest expense of Moveable Equipment at $117,225. This project will be funded through cash reserves.

Historical Data Chart:

The Historical Data Chart is located on page 43 of the application.

North Knoxville		2015	2016	2017
Cath exam volume		Initiated in June	120	112 annualized
Net Operating Rev		$	$4,886,00	$4,714,000
Net Income			$(320,000)	$(370,000)

According to the 2016 Joint Annual reports, the applicant performed 79 cardiac cath procedures.

Projected Data Chart:

The Projected Data Chart is located in Supplemental 1 of the application.

Projected Cardiac Cath Volume			
	Year 1	**Year 2**	**Year 3**
Projected Diagnostic Caths	305	381	419
Projected Therapeutic Caths	101	126	138
Total Projected Caths	**406**	**507**	**557**

Proposed Charge Schedule

	Year One	**Year Two**
Gross Charge	$44,768	$46,098
Average Deduction	$37,158	$38,261
Average Net Charge	$7,610	47,836

Projected Payor mix Year 1

Payor Source	Projected Gross Revenue	% of Total
Medicare	$4,544,100	25%
TennCare/Medicaid	$1,817,600	10%
Commercial	$9,906,100	54.5%
Self-Pay	$1,817,600	10%
Charity Care	$90,900	.5%
Total	$18,176,300	100%

CONTRIBUTION TO THE ORDERLY DEVELOPMENT OF HEALTHCARE:

In 2012, NKMC was granted CON approval under CN1211-056 for the implementation of diagnostic cardiac catheterization services within a single cath lab. This application requests the expanded ability to perform therapeutic services as well. While diagnostic services are generally performed to identify or diagnose a problem, therapeutic services are performed in order to treat or manage an illness. The catheterization services are provided by physicians from East Tennessee Heart Consultants, a physician's group comprised of 22 diagnostic and interventional cardiologists with office at all three Tennova Knoxville campuses. These physicians are capable of performing therapeutic cases and currently provide these services at Physicians Regional Medical Center. NKMC's inability to perform therapeutic services means that patient presenting in need of these services must be transferred to another location. Because these therapeutic exams are generally performed to restore blood flow to the patient's heart it is imperative to reduce any delays, including transfers, before the procedure can be performed.

The applicant, NKMC, reports that approximately 400 patients each year are transferred from its Emergency Department and inpatient units to another campus in order to receive therapeutic services. The applicant provides a patient transfer destination chart in Supplemental 1, detailing where NKMC patients in need of interventional services were transferred. These patients in need of an interventional cardiac procedure are better served if NKMC is able to perform these exams in house. Any delays in beginning an interventional procedure could result in greater risk and outcome for the patients. Patients may also incur the added expense of ambulance transfer to another Tennova campus. Patients needing these services will have access on the NKMC campus and without out traveling to the more congested downtown Knoxville areas.

Additionally, if this application is approved, patients scheduled for diagnostic procedures will benefit by having access to therapeutic services if needed and not have to undergo a second cath procedure at another facility at a later date.

Also, in continuing with the expansion of cardiac capabilities, NKMC is implementing a Chest Pain Center similar to the programs at Turkey Creek and PRMC with expected completion in June 2018. The Chest Pain Center will concentrate on patients with acute coronary syndrome and the rapid identification of patient presenting with unstable angina. Plans for the Chest Pain Center include meeting the criteria set forth by the American College of Cardiology and the American Heart Association.

The applicant provided an extensive list of educational affiliations on pages 55 and 56 of the application in which Tennova Healthcare participates.

QUALITY MEASURES:

Licensed by the Department of Health # 00000045.
Accredited by the Joint Commission
The applicant includes the Quality Assurance Program documentation in Attachment B-Need A4.

SPECIFIC CRITERIA FOR CERTIFICATE OF NEED

The applicant responded to all relevant specific criteria for Certificate of Need as set forth in the document *Tennessee's Health: Guidelines for Growth, 2000 Edition*.

Standards and Criteria for All Cardiac Catheterization Services

Applicants proposing to provide any type of cardiac catheterization services must meet the following minimum standards:

1. **Compliance with Standards:** The Division of Health Planning is working with stakeholders to develop a framework for greater accountability to these Standards and Criteria. Applicants should indicate whether they intend to collaborate with the Division and other stakeholders on this matter.

   The applicant intends to fully cooperate with the Division and other stakeholders on this matter.

2. **Facility Accreditation:** If the applicant is not required by law to be licensed by the Department of Health, the applicant should provide documentation that the facility is fully accredited or will pursue accreditation by the Joint Commission or another appropriate accrediting authority recognized by the Centers for Medicare and Medicaid Services (CMS).

   The applicant is licensed by the Department of Health and accredited by The Joint Commission.

3. **Emergency Transfer Plan:** Applicants for cardiac catheterization services located in a facility without open heart surgery capability should provide a formalized written protocol for immediate and efficient transfer of patients to a nearby open heart surgical facility (within 60 minutes) that is reviewed/tested on a regular (quarterly) basis.

   North Knoxville Medical Center does not have open heart surgery capabilities, but does have a transfer protocol to Physicians Regional Medical Center. Physicians Regional has one of the most respected and experienced open heart surgery programs in the region and is located eight miles south of North Knoxville Medical Center. NKMC will also maintain a transfer agreement with Turkey Creek Medical Center. See Attachment B Need A3.

4. **Quality Control and Monitoring:** Applicants should document a plan to monitor the quality of its cardiac catheterization program, including, but not limited to, program outcomes and efficiency. In addition, the applicant should agree to cooperate with quality enhancement efforts sponsored or endorsed by the State of Tennessee, which may be developed per Policy Recommendation 2.

   Tennova Healthcare maintains a comprehensive quality program encompassing patient outcomes, safety, and performance compared to regional and national benchmarks. See Attachment B Need A4.

5. **Data Requirements:** Applicants should agree to provide the Department of Health and/or the Health Services and Development Agency with all reasonably requested information and statistical data related to the operation and provision of services and to report that data in the time and format requested. As a standard of practice, existing data reporting streams will be relied upon and adapted over time to collect all needed information.

   The applicant will provide the Department of Health and/or the Health Services and Development with all reasonably requested information and statistical data related to the operation and provision of services. Tennova Healthcare already provides data on its other two hospitals that offer cardiac catheterization services and the data is provided from existing data reporting systems and processes.

6. **Clinical and Physical Environment Guidelines:** Applicants should agree to document ongoing compliance with the latest clinical guidelines of the American College of Cardiology/Society for Cardiac Angiography and Interventions Clinical Expert Consensus Document on Cardiac Catheterization Laboratory Standards (ACC Guidelines). As of the adoption of these Standards and Criteria, the latest version (2001) may be found online at the following website: http://www.acc.org/qualityandscience/clinical/consensus/angiography/dirIndex.htm .

   Where providers are not in compliance, they should maintain appropriate documentation stating the

reasons for noncompliance and the steps the provider is taking to ensure compliance. These guidelines include, but are not limited to, physical facility requirements, staffing, training, quality assurance, patient safety, screening patients for appropriate settings, and linkages with supporting emergency services.

The applicant will document ongoing compliance with the latest ACC clinical guidelines outlined by the ACC. Tennova Healthcare's two other cardiac catheterization programs are in compliance with these standards and the expertise of personnel already in the healthcare systems will be utilized to ensure that this new program is compliant.

NKMC will rely on the training and expertise of the staff at the two other Knox County facilities that currently provide interventional services. Experienced staff will be used to train and monitor personnel and enable an efficient implementation of interventional services.

7. **Staffing Recruitment and Retention:** The applicant should generally describe how it intends to maintain an adequate staff to operate the proposed service, including, but not limited to, any plans to partner with an existing provider for training and staff sharing.

Tennova Healthcare's two other hospitals in Metro Knoxville already provide therapeutic cardiac catheterization services. Experienced staff from those two programs will be utilized to provide training and leadership for any newer staff hired for the therapeutic cardiac catheterization/vascular procedures. Existing trained and qualified staff will be moved from other campuses to help implement the therapeutic procedures as needed. Knoxville has adequate resources of trained, qualified staff to support the services, and Tennova Healthcare has a robust and long-standing recruiting process with a demonstrated track record of hiring and retaining staff. NKMC will employ 2 Registered Nurses and 4 cardiac technologists for the project as outlined in Supplemental 1.

8. **Definition of Need for New Services:** A need likely exists for new or additional cardiac catheterization services in a proposed service area if the average current utilization for all existing and approved providers is equal to or greater than 70% of capacity (i.e., 70% of 2,000 cases) for the proposed service area.

Average utilization of existing providers in the service area: 108.6%

Data Sources: TDH Hospital Discharge Data System (HDDS), Joint Annual Reports (JARS)
Data Years: **2013-2015** (most recent years of finalized HDDS data), **2015** JARS

Methodology: Determine the three year Cardiac Cath weighted volume (diagnostic and therapeutic) performed by each Tennessee hospital in the service area by 13 age groups calculating a single year average. Include all patients seen, both Tennessee resident and non-resident. Include all occurrences of Cardiac Cath ICD-9 and ICD-10 Procedure Codes or CPT HCPCS codes with a Revenue Code 0481, Cardiology - Cardiac Cath Lab. Summarize cases based on the highest weighted code.

Cardiac Cath ICD-9, ICD-10 and CPT codes and categorizations determined with assistance from the Bureau of TennCare and the Tennessee Hospital Association. Note: ICD-10 coding began the fourth quarter of 2015.

*CPT codes 92950, 36600 were removed from the data pull for this modified run.

The service area for the current application includes Anderson, Campbell, Claiborne, Cocke, Grainger, Hamblen, Jefferson, Knox, Scott, Sevier, and Union counties. Acute care hospitals found in this area (during the years 2013-2015) are Methodist Medical Center of Oak Ridge, Tennova Healthcare-LaFollette Medical Center, Jellico Community Hospital, Claiborne County Hospital, Tennova Healthcare-Newport Medical Center, Morristown-Hamblen Healthcare System, Lakeway Regional Hospital, Tennova Healthcare-Jefferson Memorial Hospital , Fort Sanders Regional Medical Center, Tennova Healthcare, University of Tennessee Memorial

Hospital, East Tennessee Children's Hospital, Parkwest Medical Center, Tennova Healthcare-Turkey Creek Medical Center, Tennova Healthcare-North Knoxville Medical Center, Pioneer Community Hospital of Scott, and LeConte Medical Center.

Jellico Community Hospital (State ID 07252), Clairborne County Hospital (State ID 13202), East Tennessee Children's Hospital (State ID 47292) and Pioneer Community Hospital of Scott (State ID 76212) did not record any claims in the time period with Revenue Code 0481, Cardiology - Cardiac Cath Lab.

Methodist Medical Center of Oak Ridge (State ID 01202)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	4,316.0	4,296.0	0.0	20.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	23.0	21.0	0.0	2.0
30 - 39	123.0	123.0	0.0	0.0
40 - 44	179.0	179.0	0.0	0.0
45 - 49	290.0	290.0	0.0	0.0
50 - 54	437.0	433.0	0.0	4.0
55 - 59	551.0	551.0	0.0	0.0
60 - 64	598.0	598.0	0.0	0.0
65 - 69	715.0	709.0	0.0	6.0
70 - 74	551.0	545.0	0.0	6.0
75 - 79	438.0	438.0	0.0	0.0
80 - 84	266.0	264.0	0.0	2.0
85 +	145.0	145.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	3,187.0	430.0	2,385.0	372.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	11.0	2.0	9.0	0.0
30 - 39	92.0	4.0	84.0	4.0
40 - 44	162.0	10.0	144.0	8.0
45 - 49	189.0	24.0	153.0	12.0
50 - 54	324.0	30.0	270.0	24.0
55 - 59	411.0	72.0	303.0	36.0
60 - 64	389.0	62.0	291.0	36.0
65 - 69	501.0	82.0	351.0	68.0
70 - 74	396.0	54.0	258.0	84.0
75 - 79	363.0	38.0	273.0	52.0
80 - 84	207.0	32.0	135.0	40.0
85 +	142.0	20.0	114.0	8.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Tennova Healthcare - LaFollette Medical Center (State ID 07242)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	3.0	3.0	0.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	0.0	0.0	0.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	1.0	1.0	0.0	0.0
55 - 59	2.0	2.0	0.0	0.0
60 - 64	0.0	0.0	0.0	0.0
65 - 69	0.0	0.0	0.0	0.0
70 - 74	0.0	0.0	0.0	0.0
75 - 79	0.0	0.0	0.0	0.0
80 - 84	0.0	0.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	15.0	0.0	15.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	0.0	0.0	0.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	0.0	0.0	0.0	0.0
55 - 59	3.0	0.0	3.0	0.0
60 - 64	3.0	0.0	3.0	0.0
65 - 69	0.0	0.0	0.0	0.0
70 - 74	6.0	0.0	6.0	0.0
75 - 79	3.0	0.0	3.0	0.0
80 - 84	0.0	0.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Tennova Healthcare - Newport Medical Center (State ID 15222)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	0.0	0.0	0.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	0.0	0.0	0.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	0.0	0.0	0.0	0.0
55 - 59	0.0	0.0	0.0	0.0
60 - 64	0.0	0.0	0.0	0.0
65 - 69	0.0	0.0	0.0	0.0
70 - 74	0.0	0.0	0.0	0.0
75 - 79	0.0	0.0	0.0	0.0
80 - 84	0.0	0.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	2.0	2.0	0.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	0.0	0.0	0.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	0.0	0.0	0.0	0.0
55 - 59	0.0	0.0	0.0	0.0
60 - 64	0.0	0.0	0.0	0.0
65 - 69	0.0	0.0	0.0	0.0
70 - 74	2.0	2.0	0.0	0.0
75 - 79	0.0	0.0	0.0	0.0
80 - 84	0.0	0.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Morristown - Hamblen Healthcare System (State ID 32242)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	1,815.0	1,800.0	15.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	3.0	3.0	0.0	0.0
30 - 39	40.0	40.0	0.0	0.0
40 - 44	93.0	93.0	0.0	0.0
45 - 49	128.0	128.0	0.0	0.0
50 - 54	243.0	243.0	0.0	0.0
55 - 59	281.0	278.0	3.0	0.0
60 - 64	271.5	270.0	1.5	0.0
65 - 69	260.5	256.0	4.5	0.0
70 - 74	233.0	230.0	3.0	0.0
75 - 79	150.5	149.0	1.5	0.0
80 - 84	79.0	79.0	0.0	0.0
85 +	32.5	31.0	1.5	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	1,462.0	100.0	1,350.0	12.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	39.0	6.0	33.0	0.0
40 - 44	58.0	4.0	54.0	0.0
45 - 49	94.0	0.0	90.0	4.0
50 - 54	162.0	12.0	150.0	0.0
55 - 59	220.0	22.0	198.0	0.0
60 - 64	219.0	24.0	195.0	0.0
65 - 69	197.0	6.0	183.0	8.0
70 - 74	194.0	14.0	180.0	0.0
75 - 79	119.0	8.0	111.0	0.0
80 - 84	103.0	4.0	99.0	0.0
85 +	57.0	0.0	57.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Lakeway Regional Hospital (State ID 32252)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	34.5	33.0	1.5	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	1.0	1.0	0.0	0.0
30 - 39	2.5	1.0	1.5	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	3.0	3.0	0.0	0.0
50 - 54	5.0	5.0	0.0	0.0
55 - 59	2.0	2.0	0.0	0.0
60 - 64	5.0	5.0	0.0	0.0
65 - 69	2.0	2.0	0.0	0.0
70 - 74	10.0	10.0	0.0	0.0
75 - 79	3.0	3.0	0.0	0.0
80 - 84	1.0	1.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	6.0	0.0	6.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	0.0	0.0	0.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	0.0	0.0	0.0	0.0
55 - 59	0.0	0.0	0.0	0.0
60 - 64	0.0	0.0	0.0	0.0
65 - 69	3.0	0.0	3.0	0.0
70 - 74	0.0	0.0	0.0	0.0
75 - 79	3.0	0.0	3.0	0.0
80 - 84	0.0	0.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Tennova Healthcare - Jefferson Memorial Hospital (State ID 45242)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	32.0	32.0	0.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	1.0	1.0	0.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	2.0	2.0	0.0	0.0
55 - 59	4.0	4.0	0.0	0.0
60 - 64	4.0	4.0	0.0	0.0
65 - 69	6.0	6.0	0.0	0.0
70 - 74	4.0	4.0	0.0	0.0
75 - 79	2.0	2.0	0.0	0.0
80 - 84	5.0	5.0	0.0	0.0
85 +	4.0	4.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	18.0	0.0	18.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	3.0	0.0	3.0	0.0
30 - 39	0.0	0.0	0.0	0.0
40 - 44	6.0	0.0	6.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	0.0	0.0	0.0	0.0
55 - 59	0.0	0.0	0.0	0.0
60 - 64	0.0	0.0	0.0	0.0
65 - 69	3.0	0.0	3.0	0.0
70 - 74	3.0	0.0	3.0	0.0
75 - 79	0.0	0.0	0.0	0.0
80 - 84	0.0	0.0	0.0	0.0
85 +	3.0	0.0	3.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Fort Sanders Regional Medical Center (State ID 47212)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	3,368.0	3,308.0	54.0	6.0
0 - 17	2.0	2.0	0.0	0.0
18 - 29	13.0	13.0	0.0	0.0
30 - 39	61.0	61.0	0.0	0.0
40 - 44	116.5	115.0	1.5	0.0
45 - 49	224.5	223.0	1.5	0.0
50 - 54	327.0	327.0	0.0	0.0
55 - 59	431.0	420.0	9.0	2.0
60 - 64	462.5	455.0	7.5	0.0
65 - 69	574.0	563.0	9.0	2.0
70 - 74	455.0	443.0	12.0	0.0
75 - 79	357.0	351.0	6.0	0.0
80 - 84	217.0	212.0	3.0	2.0
85 +	127.5	123.0	4.5	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	2,866.0	442.0	2,316.0	108.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	9.0	0.0	9.0	0.0
30 - 39	35.0	2.0	33.0	0.0
40 - 44	122.0	14.0	108.0	0.0
45 - 49	203.0	32.0	171.0	0.0
50 - 54	294.0	26.0	252.0	16.0
55 - 59	387.0	36.0	339.0	12.0
60 - 64	375.0	62.0	297.0	16.0
65 - 69	442.0	88.0	342.0	12.0
70 - 74	343.0	52.0	279.0	12.0
75 - 79	307.0	64.0	231.0	12.0
80 - 84	203.0	34.0	153.0	16.0
85 +	146.0	32.0	102.0	12.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Tennova Healthcare (State ID 47242)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	3,716.0	3,529.0	39.0	148.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	20.0	16.0	0.0	4.0
30 - 39	118.0	111.0	3.0	4.0
40 - 44	191.5	181.0	4.5	6.0
45 - 49	319.5	318.0	1.5	0.0
50 - 54	422.5	404.0	4.5	14.0
55 - 59	508.5	485.0	1.5	22.0
60 - 64	457.0	438.0	3.0	16.0
65 - 69	540.5	520.0	4.5	16.0
70 - 74	446.0	413.0	9.0	24.0
75 - 79	362.0	330.0	6.0	26.0
80 - 84	216.5	199.0	1.5	16.0
85 +	114.0	114.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	5,186.0	438.0	4,092.0	656.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	21.0	2.0	15.0	4.0
30 - 39	142.0	12.0	102.0	28.0
40 - 44	204.0	14.0	174.0	16.0
45 - 49	432.0	26.0	390.0	16.0
50 - 54	563.0	36.0	483.0	44.0
55 - 59	651.0	58.0	537.0	56.0
60 - 64	667.0	60.0	543.0	64.0
65 - 69	784.0	72.0	600.0	112.0
70 - 74	657.0	66.0	483.0	108.0
75 - 79	537.0	52.0	357.0	128.0
80 - 84	296.0	20.0	216.0	60.0
85 +	232.0	20.0	192.0	20.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

University of Tennessee Memorial Hospital (State ID 47282)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	7,098.0	6,038.0	144.0	916.0
0 - 17	162.0	162.0	0.0	0.0
18 - 29	105.0	25.0	0.0	80.0
30 - 39	203.0	133.0	6.0	64.0
40 - 44	296.0	245.0	9.0	42.0
45 - 49	466.0	408.0	12.0	46.0
50 - 54	720.5	629.0	13.5	78.0
55 - 59	895.5	785.0	22.5	88.0
60 - 64	1,026.0	900.0	24.0	102.0
65 - 69	1,140.5	954.0	16.5	170.0
70 - 74	931.5	799.0	16.5	116.0
75 - 79	635.0	546.0	9.0	80.0
80 - 84	343.5	303.0	10.5	30.0
85 +	173.5	149.0	4.5	20.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	7,342.0	2,018.0	4,068.0	1,256.0
0 - 17	166.0	76.0	66.0	24.0
18 - 29	64.0	18.0	6.0	40.0
30 - 39	193.0	34.0	111.0	48.0
40 - 44	302.0	48.0	198.0	56.0
45 - 49	516.0	120.0	348.0	48.0
50 - 54	699.0	188.0	411.0	100.0
55 - 59	962.0	274.0	552.0	136.0
60 - 64	1,095.0	274.0	633.0	188.0
65 - 69	1,168.0	348.0	552.0	268.0
70 - 74	999.0	298.0	513.0	188.0
75 - 79	618.0	206.0	312.0	100.0
80 - 84	377.0	92.0	249.0	36.0
85 +	183.0	42.0	117.0	24.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Parkwest Medical Center (State ID 47322)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	8,226.5	8,078.0	112.5	36.0
0 - 17	4.0	4.0	0.0	0.0
18 - 29	20.0	18.0	0.0	2.0
30 - 39	178.0	172.0	6.0	0.0
40 - 44	336.5	327.0	7.5	2.0
45 - 49	530.5	521.0	7.5	2.0
50 - 54	776.5	773.0	1.5	2.0
55 - 59	1,066.5	1,047.0	13.5	6.0
60 - 64	1,207.5	1,194.0	7.5	6.0
65 - 69	1,402.5	1,376.0	22.5	4.0
70 - 74	1,199.5	1,178.0	13.5	8.0
75 - 79	838.5	815.0	19.5	4.0
80 - 84	454.5	444.0	10.5	0.0
85 +	212.0	209.0	3.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	5,810.0	716.0	4,722.0	372.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	10.0	0.0	6.0	4.0
30 - 39	97.0	12.0	81.0	4.0
40 - 44	251.0	22.0	225.0	4.0
45 - 49	348.0	38.0	306.0	4.0
50 - 54	537.0	50.0	471.0	16.0
55 - 59	760.0	108.0	624.0	28.0
60 - 64	785.0	108.0	621.0	56.0
65 - 69	960.0	100.0	792.0	68.0
70 - 74	830.0	98.0	660.0	72.0
75 - 79	621.0	88.0	465.0	68.0
80 - 84	394.0	56.0	306.0	32.0
85 +	217.0	36.0	165.0	16.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Tennoval Healthcare Turkey Creek Medical Center (State ID 47332)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	1,567.0	1,355.0	24.0	188.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	8.0	4.0	0.0	4.0
30 - 39	25.0	21.0	0.0	4.0
40 - 44	60.5	53.0	1.5	6.0
45 - 49	107.5	98.0	1.5	8.0
50 - 54	147.5	135.0	4.5	8.0
55 - 59	194.0	168.0	6.0	20.0
60 - 64	217.5	181.0	4.5	32.0
65 - 69	235.0	217.0	0.0	18.0
70 - 74	211.0	171.0	0.0	40.0
75 - 79	173.0	137.0	6.0	30.0
80 - 84	127.0	111.0	0.0	16.0
85 +	61.0	59.0	0.0	2.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	2,072.0	284.0	1,428.0	360.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	10.0	2.0	0.0	8.0
30 - 39	27.0	2.0	21.0	4.0
40 - 44	67.0	4.0	51.0	12.0
45 - 49	123.0	16.0	87.0	20.0
50 - 54	167.0	20.0	111.0	36.0
55 - 59	246.0	34.0	168.0	44.0
60 - 64	308.0	46.0	234.0	28.0
65 - 69	290.0	34.0	204.0	52.0
70 - 74	297.0	44.0	201.0	52.0
75 - 79	251.0	50.0	153.0	48.0
80 - 84	176.0	28.0	120.0	28.0
85 +	110.0	4.0	78.0	28.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

Tennova Healthcare North Knoxville Medical Center (State ID 47352)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	39.0	39.0	0.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	1.0	1.0	0.0	0.0
30 - 39	3.0	3.0	0.0	0.0
40 - 44	2.0	2.0	0.0	0.0
45 - 49	2.0	2.0	0.0	0.0
50 - 54	5.0	5.0	0.0	0.0
55 - 59	3.0	3.0	0.0	0.0
60 - 64	6.0	6.0	0.0	0.0
65 - 69	9.0	9.0	0.0	0.0
70 - 74	5.0	5.0	0.0	0.0
75 - 79	1.0	1.0	0.0	0.0
80 - 84	1.0	1.0	0.0	0.0
85 +	1.0	1.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	29.0	4.0	21.0	4.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	3.0	0.0	3.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	3.0	0.0	3.0	0.0
50 - 54	4.0	0.0	0.0	4.0
55 - 59	6.0	0.0	6.0	0.0
60 - 64	5.0	2.0	3.0	0.0
65 - 69	6.0	0.0	6.0	0.0
70 - 74	2.0	2.0	0.0	0.0
75 - 79	0.0	0.0	0.0	0.0
80 - 84	0.0	0.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

LeConte Medical Center (State ID 78232)

Highest Weighted* Cardiac Cath Services Provided - Hospital Discharge Recorded Data - 2013-2015

Diagnostic Cardiac Caths				
	Diagnostic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	437.5	427.0	10.5	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	9.0	9.0	0.0	0.0
40 - 44	16.0	16.0	0.0	0.0
45 - 49	39.0	39.0	0.0	0.0
50 - 54	35.5	34.0	1.5	0.0
55 - 59	63.5	62.0	1.5	0.0
60 - 64	57.0	54.0	3.0	0.0
65 - 69	71.0	68.0	3.0	0.0
70 - 74	61.0	61.0	0.0	0.0
75 - 79	49.5	48.0	1.5	0.0
80 - 84	24.0	24.0	0.0	0.0
85 +	12.0	12.0	0.0	0.0

Therapeutic Cardiac Caths				
	Therapeutic	Service Categories		
Age Grp	Total	CC	PV	EP
Total	11.0	2.0	9.0	0.0
0 - 17	0.0	0.0	0.0	0.0
18 - 29	0.0	0.0	0.0	0.0
30 - 39	3.0	0.0	3.0	0.0
40 - 44	0.0	0.0	0.0	0.0
45 - 49	0.0	0.0	0.0	0.0
50 - 54	0.0	0.0	0.0	0.0
55 - 59	3.0	0.0	3.0	0.0
60 - 64	0.0	0.0	0.0	0.0
65 - 69	2.0	2.0	0.0	0.0
70 - 74	3.0	0.0	3.0	0.0
75 - 79	0.0	0.0	0.0	0.0
80 - 84	0.0	0.0	0.0	0.0
85 +	0.0	0.0	0.0	0.0

CC - Cardiac Catheterization PV - Peripheral Vascular Catheterization EP - Electrophysiological Studies

* Cardiac Cath ICD-9, ICD-10, CPT codes and service categories provided by the Bureau of TennCare and the Tennessee Hospital Association.

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Facility Statistics. Hospital Discharge Data System, 2013-2015. Nashville, TN.

From the **2015** Joint Annual Reports (JAR) of Hospitals there are 24 Cardiac Cath labs in operation in the service area:

Methodist Medical Center of Oak Ridge – 2 labs
Morristown-Hamblen Healthcare System – 2 labs
Fort Sanders Regional Medical Center – 4 labs
Tennova Healthcare – 3 labs
University of Tennessee Memorial Hospital – 5 labs
Parkwest Medical Center – 5 labs
Tennova Healthcare-Turkey Creek Medical Center – 4 lab*****
Tennova Healthcare-North Knoxville Medical Center – 1 lab
LeConte Medical Center – 1 lab

***2015** JARs reported 1 lab for Turkey Creek, consultants for this project confirmed with hospital that number reported should have been 4 labs, resulting in a total of **27** labs for the service area.

Service Area Hospital	Diagnostic Cardiac Caths	Therapeutic Cardiac Caths	Total Cardiac Caths
Methodist Medical Center of Oak Ridge (State ID 01202)	4,316.0	3,187.0	7,503.0
Tennova Healthcare - LaFollette Medical Center (State ID 07242)	3.0	15.0	18.0
Tennova Healthcare - Newport Medical Center (State ID 15222)	0.0	2.0	2.0
Morristown - Hamblen Healthcare System (State ID 32242)	1,815.0	1,462.0	3,277.0
Lakeway Regional Hospital (State ID 32252)	34.5	6.0	40.5
Tennova Healthcare - Jefferson Memorial Hospital (State ID 45242)	32.0	18.0	50.0
Fort Sander Regional Medical Center (State ID 47212)	3,368.0	2,866.0	6,234.0
Tennova Healthcare (State ID 47242)	3,716.0	5,186.0	8,902.0
University of Tennessee Memorial Hospital (State ID 47282)	7,098.0	7,342.0	14,440.0
Parkwest Medical Center (State ID 47322)	8,226.5	5,810.0	14,036.5
Tennova Healthcare Turkey Creek Medical Center (State ID 47332)	1,567.0	2,072.0	3,639.0
Tennova Healthcare North Knoxville Medical Center (State ID 47352)	39.0	29.0	68.0
LeConte Medical Center (State ID 78232)	437.5	11.0	448.5
Totals	30,652.5	28,006.0	58,658.5

# of Caridac Cath Labs in Service Area (JAR)	27
Capacity per Lab (defined by standards)	2,000
Total Capacity in Service Area	54,000
Percent of Existing Services to Capacity	108.6%

***2015** JARS reported 1 lab for Turkey Creek, consultants for this project confirmed with hospital that number reported should have been 4 labs, resulting in a total of 27 labs for the service area.

(Four of the hospitals listed in the Table above reported zero cath labs, but showed slight weighted exam numbers, most likely due to billing inconsistencies.)

9. **Proposed Service Areas with No Existing Service:** In proposed service areas where no existing cardiac catheterization service exists, the applicant must show the data and methodology used to estimate the need and demand for the service.

   Projected need and demand will be measured for applicants proposing to provide services to residents of those areas as follows:

   Need: The projected need for a service will be demonstrated through need-based epidemiological evidence of the incidence and prevalence of conditions for which diagnostic and/or therapeutic catheterization is appropriate within the proposed service area.

   Demand: The projected demand for the service shall be determined by the following formula:

   A. Multiply the age group-specific historical state utilization rate by the number of residents in each age category for each county included in the proposed service area to produce the projected demand for each age category;

   B. Add each age group's projected demand to determine the total projected demand for cardiac catheterization procedures for the entire proposed service area.

   Not applicable; the proposed service is in an area with existing service providers.

10. **Access:** In light of Rule 0720-4-.01 (1), which lists the factors concerning need on which an application may be evaluated, the HSDA may decide to give special consideration to an applicant:

a. Who is offering the service in a medically underserved area as designated by the United States Health Resources and Services Administration?

North Knoxville Medical Center's service encompasses designated medically underserved areas by the United States Health Resources and Services Administration including Anderson, Campbell, Claiborne, Cocke, Grainger, Scott, and Union counties.

b. Who documents that the service area population experiences a prevalence, incidence and/or mortality from heart and cardiovascular diseases or other clinical conditions applicable to cardiac catheterization services that is substantially higher than the State of Tennessee average;

According to the Tennessee Department of Health, Division of Health Statistics, the average age adjusted mortality rate from diseases of the heart was 317 deaths per 100,000 across Tennessee. The counties in North Knoxville's service area with the higher average age-adjusted mortality rates from diseases of the heart are Claiborne, Cocke, Scott, Campbell, Union, and Sevier counties.

c. Who is a "safety net hospital" as defined by the Bureau of TennCare Essential Access Hospital payment program; or

North Knoxville Medical Center is not designated as a safety net hospital.

d. Who provides a written commitment of intention to contract with at least one TennCare MCO and, if providing adult services, to participate in the Medicare program.

Specific Standards and Criteria for the Provision of Therapeutic Cardiac Catheterization Services

Applicants proposing to provide therapeutic cardiac catheterization services must meet the following minimum standards:

14. **Minimum Volume Standard:** Such applicants should demonstrate that the proposed service utilization will be a minimum of 400 diagnostic and/or therapeutic cardiac catheterization cases per year by its third year of operation. At least 75 of these cases per year should include a therapeutic cardiac catheterization procedure. Annual volume shall be measured based upon a two-year average which shall begin at the conclusion of the applicant's first year of operation. Only cases including diagnostic and therapeutic cardiac catheterization procedures as defined by these Standards and Criteria shall count towards meeting this minimum volume standard.

Projected Cardiac Cath Volume			
	Year 1	***Year 2***	***Year 3***
Projected Diagnostic Caths	*305*	*381*	*419*
Projected Therapeutic Caths	*101*	*126*	*138*
Total Projected Caths	***406***	***507***	***557***

15. **Open Heart Surgery Availability:** Acute care facilities proposing to offer adult therapeutic cardiac catheterization services shall not be required to maintain an on-site open heart surgery program. Applicants without on-site open heart surgery should follow the most recent American College of Cardiology/American Heart Association/Society for Cardiac Angiography and Interventions Practice Guideline Update for Percutaneous Coronary Intervention (ACC/AHA/SCAI Guidelines). As of the adoption of these Standards and Criteria, the latest version of this document (2007) may be found online at:
http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.107.185159

Therapeutic procedures should not be performed in freestanding cardiac catheterization laboratories, whether fixed or mobile. Mobile units may, however, perform therapeutic procedures provided the mobile unit is located on a hospital campus and the hospital has on-site open heart surgery. In addition, hospitals approved to perform therapeutic cardiac catheterizations without on-site open heart surgery backup may temporarily perform these procedures in a mobile laboratory on the hospital's campus during construction impacting the fixed laboratories.

NKMC has in place transfer agreements with PRMC and Turkey Creek Medical Center which both have open heart surgery capability. See the Transfer Agreement, Attachment B-Need A3.

16. **Minimum Physician Requirements to Initiate a New Service:** The initiation of a new therapeutic cardiac catheterization program should require at least two cardiologists with at least one cardiologist having performed an average of 75 therapeutic procedures over the most recent five year period. All participating cardiologists in the proposed program should be board certified or board eligible in cardiology and any relevant cardiac subspecialties.

The applicant provides a historical chart of cardiologist' procedure volumes for 2015 and 2016 in Supplemental 1 of the application. Two of the six cardiologists listed had performed over 75 therapeutic exams for those years.

17. **Staff and Service Availability:** Ideally, therapeutic services should be available on an emergency basis 24 hours per day, 7 days per week through a staff call schedule (24/7 emergency coverage). In addition, all laboratory staff should be available within 30 minutes of the activation of the laboratory. If the applicant will not be able to immediately provide 24/7 emergency coverage, the applicant should present a plan for reaching 24/7 emergency coverage within three years of initiating the service or present a signed transfer agreement with another facility capable of treating transferred patients in a cardiac catheterization laboratory on a 24/7 basis within 90 minutes of the patient's arrival at the originating emergency department.

The applicant states that NKMC staff will be available on an emergency basis, 24 hours per day, 7 days per week utilizing a call schedule. Staff must be within 30 minutes of the cath laboratory.

18. **Expansion of Services to Include Therapeutic Cardiac Catheterization:** An applicant proposing the establishment of therapeutic cardiac catheterization services, who is already an existing provider of diagnostic catheterization services, should demonstrate that its diagnostic cardiac catheterization unit has been utilized for an average minimum of 300 cases per year for the two most recent years as reflected in the data supplied to and/or verified by the Department of Health.

The applicant reports in the Joint Annual Reports for Hospitals 2015 that diagnostic services were initiated on 5/27/2015 and reported 0 diagnostic cases for the 2015 report.

The applicant reports in the Joint Annual Reports for Hospitals 2016 performing 79 diagnostic cases.